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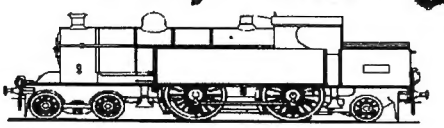

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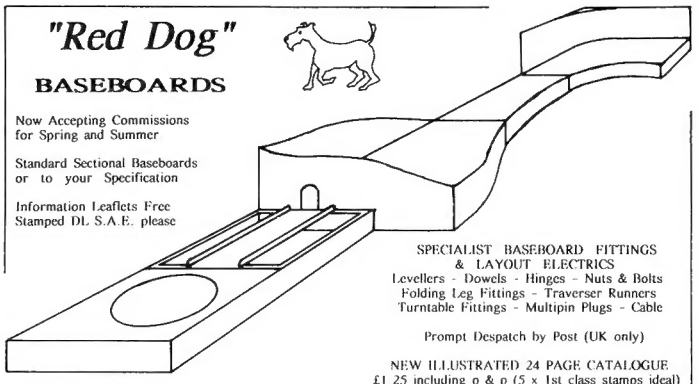

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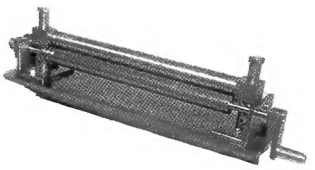

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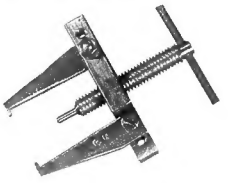

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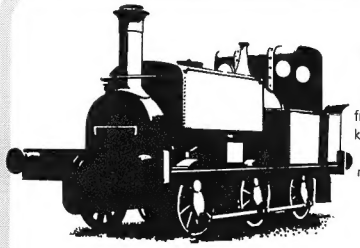

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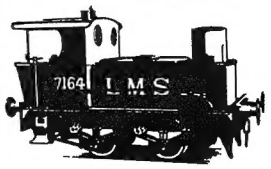

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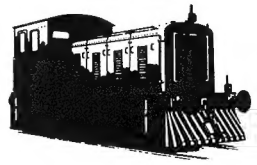

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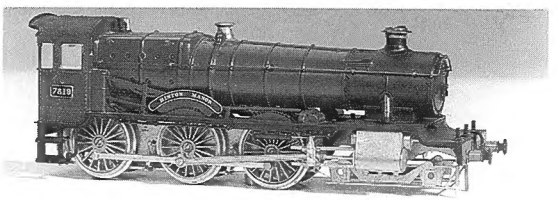

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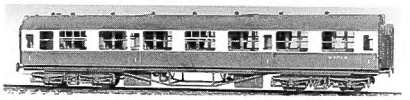

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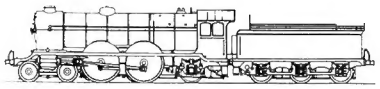

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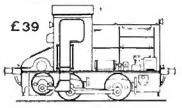
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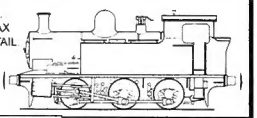

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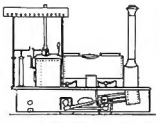

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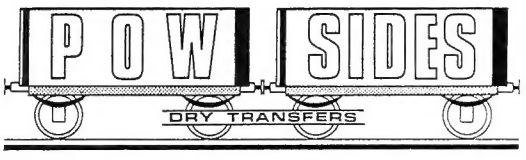

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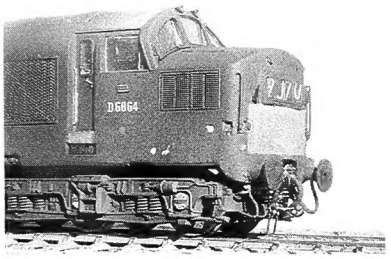

Cover photo: Tim Shackleton's 4mm scale Class 37.

The Good Old Days?

Over the past months, the news from our real, present-day railway system has grown increasingly depressing. The problem of buying through tickets from the various outfits to whom the network is steadily being sold were just the start. Then came the question marks over fundamental safety aspects, some with terrifying potential, followed by allegations of sleaze in the political handling of the sell-off. In the week prior to writing this, I have heard yet more reports of crumbling service on important commuter routes, the deliberate doubling of fares to 'suppress demand' on a West Country local line, discount inducements being offered to schoolkids to make them take a 7.00 a.m. train instead of the 8.30 a.m. train they would normally use – a device to save stock for adult-fare passengers, regardless of the fact that it is pushing the youngsters into what amounts to a nine-hour day – and the general descent of our railway into a laughing stock. As Parliament broke for the Christmas recess, a startling number of Conservative MPs – for whom privatisation is supposed to be the Holy Grail – were expressing serious doubts about the wisdom of the whole process. Today's railway, it seems, is rich in snappy names, zappy corporate liveries and management buzzwords but little else – or, as Max Miller might have put it: all fur coat and no drawers.

This is not the place to debate these questions in detail, especially as most of us – at least in modelling terms – are in the nostalgia business. Many MRJ readers, like me, are pre-Beeching babies who were brought up to know that railways were Britain's greatest gift to the world and that they could be relied upon to get us or our goods just about anywhere. This old notion was vividly brought back to me just recently while temporarily laid up with a fluey-buggy thing (no doubt brought into the house by my darling daughter). Lying there in a stuffed-up, drugged-up stupor, I had a strange and enchanting flashback to the moment, some 40 years ago, when I first fell under the spell of railways. For a few wonderful moments, it was all as clear as crystal. I was walking with my mother along Wood Street, Walthamstow, in north-east London, on a still autumn day; there, ahead of us on the overbridge, was a wheezing, filthy 0–6–0 spewing patchy grey smoke and steam. I could hear it sizzling quietly beneath the sounds of my mum's voice, the distant clank of couplings in Wood Street yard and even the cawing of rooks half a mile away at St. Mary's in Old Walthamstow. We passed by a yellow and red *Evening News* van, clambered up the gloomy stairs to the platform and boarded a dark and dusty train bound for Hoe Street and the shops. The dream evaporated as we stepped into an empty single compartment, where millions of dust flecks floated lazily in a shaft of low autumn sunshine.

Later, sipping my cup of Lemsip, I remembered how every subsequent railway journey became an adventure for me. Because there simply *were* so many trips to enjoy. We went shopping by train, visited friends, went on holiday – oh, these wonderful journeys to the Devon and Norfolk coasts! – and even, on one memorable occasion, travelled for almost 24-hours to the far north of Scotland. The trains, stations and facilities may have been from a bygone age, but they seemed to provide a comprehensive and genuinely social service. How sad that these days, one can barely find a train going where one wants to be – and even if you do, the fare is an arm and a leg. Nostalgia may be – as one of our contributors puts it in this issue, with some justification – an 'invidious and unhealthy melancholy', but I for one am glad that my enthusiasms were forged in the days when the railway was worthy of the name.

Okay, so I'm getting old. But no one can accuse me of not trying to keep up – for letters, diary entries, society notes and other material for MRJ editorial (not head office at Didcot) can now be sent by e-mail. This is not to say we will find the time to indulge in the web convention of lengthy and detailed replies – it's just another convenient way of getting information to us. Please make your subject 'MRJ' and send to RBC@dial.pipex.com. Who knows, one day we may have a bulletin board?

Bob Barlow

MODEL RAILWAY JOURNAL

Edited by Bob Barlow. Designed by Paul Karau.

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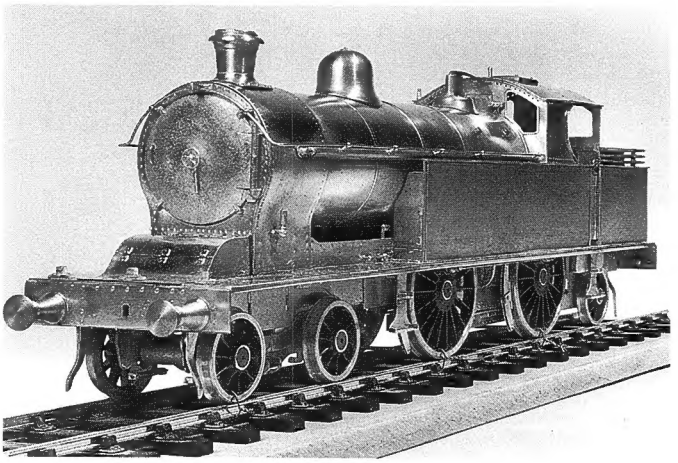
SMALL SUPPLIER FORUM

TRADE GRAPEVINE

COMET MODELS' latest chassis kit is for the recently-introduced Bachmann LMS Ivatt 2–6–2 tank. The kit follows the well-established tradition of a series of sub-packs, each available separately if required, which combine to make a good basic chassis at a reasonable price. As Bachmann chassis are not too easy to convert to other wheel types or more accurate gauges, this kit will be especially welcome to those wishing to refine the accurate Bachmann body. The full chassis kit, including cylinders and valve gear is coded LCP11 and costs £24.25 plus £1.00 post from Comet Models, 105 Mossfield Road, Kings Heath, Birmingham, B14 7JE, or at the shows they attend.

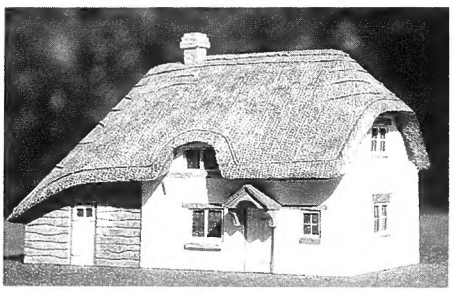
HOWARD SCENICS has been able to reduce the retail prices of its range of Victorian house kits by replacing the brass window frame etchings with finely printed glazing bars on acetate sheet. The etched brass parts will, however, still be available as an optional extra for those who wish to go that one extra step. New prices are: Victorian bay-fronted houses (pair) £4.99; house backs (matches above – pair) £5.99; small Victorian house-front, plain (pair) £3.99. Post on 1-3 kits, 75p (free on orders over £16).

After a quiet spell, Robin Arkinstall's IMPETUS MODELS has issued a new 7mm kit – and what a prototype! It is for the Manning Wardle K-type 0–6–0, based on the beautiful prototype *Ringing Rock* which ran on the Selsey Tramway. Etched brass and nickel-silver with whitemetal and brass castings, it can be made to represent most of the class which ran from the 1880s until the last one was withdrawn in the '60s. The kit costs £78.50 (post free) from Impetus at PO Box 1472, Coggeshall, Essex, CO6 1UQ. A 4mm version is available at £48.85.

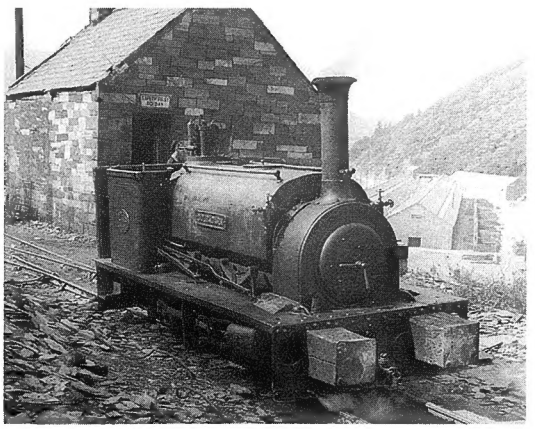


We recently mentioned in this column London Road Models' 7mm kit for the LNWR Precursor Tank – and here it is, a little beauty. Cost is £115 post free from LRM at 1 The Avenue, Romford, Essex, RM1 4DL.

Having had a 4mm chassis kit for the GWR 1361 saddle tank on the market for many years, PETER K (LONDON) has at last issued a body kit, in etched brass with lost wax boiler fittings mastered by Guy Williams. The kit costs £52.50 and the chassis kit £20.76, or the pair £69.53. Peter K's proprietor Peter Dawson tells us that a 7mm body kit for the 1361 will be issued around Easter. Peter K is at Hillcroft School, Walnut Tree Manor, Haughley Green, Stowmarket, Suffolk, IP14 3RQ.



Thanks to ShireLane Crafts, visitors to Pendon Museum will now be able to purchase a detailed model of Breakspeare Cottage, one of the cottages on the Vale scene. This is a limited edition of 250 unpainted models for completion by the purchaser, and there will be a further 50 cottages which will be hand-painted with acrylics by ShireLane Crafts. Each painted cottage comes complete with a signed certificate of origin. The new miniature, cast in resin, is not absolutely identical to the one on the Vale. The ShireLane model is in 2mm scale (Pendon is 4mm of course) and is based on the prototype as surveyed for Pendon in 1977. The models are available only to visitors to Pendon and the unpainted cottage is £8, painted £30. Pendon Museum is in Long Wittenham, 3 miles north-east of Didcot, 6 miles south of Oxford and 3 miles east of Abingdon. Once in the village, the way is clearly marked by brown tourist signs.



When you're building a model of a particular engine, you can't beat a good photo of the prototype – and if the prototype happens to be an industrial, you can't beat Cyril Golding for coming up with the photos. Spotting the Wrightlines announcement of forthcoming 7mm kits for the distinctive quarry Hunslets, he supplied these shots of George B *and* Dolbadarn *at work in the mighty Dinorwic slate quarries, North Wales, in September 1959. The picture of* George B *reminds us that when modelling the slate industry, you can't have too many acres of slate waste around the layout . . .*

DYNA-DRIVEN CLASS 37

Photos: Author

TIM SHACKLETON puts the Dyna-Drive clutch-and-flywheel system into a 4mm Lima Class 37 – and then gets to work on giving his 'Growler' a more accurate shell:

A couple of Class 60s had just gone by on MGR workings, closely followed by a National Power Class 59 with a long, long rake of empty limestone hoppers. They all sounded like they were powered by gigantic Portescaps, a vague and polite murmur that scarcely disturbed the crows in the fields alongside the line. Two thousand tons of metal on the move and everything running as smoothly and silently as a lift in a luxury block.

Nothing happened for quite some time. Then, from the Ferrybridge direction, came this awful racket, like a turbo-charged cement mixer at maximum revs, a Hercules doing a low-level pass and the loudest band you ever heard, all at the same time. The ground shook and a Class 37 throbbed by with a rake of steel flats, every rivet straining, hot exhaust leaving a lingering haze over the Yorkshire countryside. At 50 mph and accelerating, it was awesome.

Sometimes when fine-tuning a motor until the gears roll with barely a whisper, I have to remind myself that real engines can be noisy, lumbering animals. They go from 0–60 mph in about three minutes and it's hard work, even with several thousand horsepower under the hood. There is, first of all, the problem of inertia to overcome – getting under way, the effort is tangible, evinced by the plumes of smoke and the bellowing exhaust. Diesels don't stop dead, either, when the driver turns the controller to zero; momentum keeps the train rolling until the last, gentle brake application. The laws of physics, not an ECM or a Pentroller, govern the way the engine moves.

Some years ago a brilliant young engineer from Sweden, Stellan Brimalm, devised a propulsion system for model locomotives that reproduced some of the characteristics. He called it Dyna-Drive. It was based on the use of a centrifugal clutch of advanced design, working in conjunction with heavy flywheels and a precision axle-mounted gearbox. In Dyna-Drive, the motor idles until enough power is applied to partially engage the clutch, at which point the flywheel – and the loco – slowly begins to roll. As revs increase, the clutch grips and the engine accelerates smoothly away. To stop the loco, power is eased off, the clutch disengages and the engine coasts to a halt with the momentum of the flywheels.

In MRJ Nos 28 & 29 Chris Pendlenton described the construction of a Peppercorn A1 Pacific using the Dyna-Drive system. Round about the same time, when the system was being distributed in the UK by Starline Designs, I saw a demonstration of the system at the Ipswich show and was able to drive one of the diesel-outline locos on the stand. It was a mightily impressive experience – the slow build-up of power, the irrestible surge of momentum, the feeling of mass and movement. It was quite unlike any conventional drive system I had encountered, and the audible workings of the clutch and motor produced sound effects that convincingly matched the movements of the loco – not quite the full-blooded roar of *British Steel Corby* with its rake of BDAs, perhaps, but an eminently reasonable approximation of a diesel locomotive going about its business. I put Dyna-Drive firmly into the 'one of these days' category.

Today the UK distribution of Dyna-Drive is in the hands of John Lythgoe of Formil, based in North Yorkshire. Formil do complete kits to convert proprietary models of Classes 26/27/33/37/40/47/50/52/55/58/59/60 and 86, with more to come and specials to order. Each kit has its own instruction manual because the Dyna-Drive configuration varies considerably between classes. All components are available separately and Formil will, if required, do the conversion work for you which, in my view, rather spoils the fun. Feeling unusually flush and wanting a challenge, I finally took the plunge and ordered a Dyna-Drive conversion kit for a Class 37. The kit, which set me back the best part of £100, was well packaged and contained absolutely everything necessary,

from the interesting bits like the clutch, gearbox and power bogie to the inductors, transducers, cardan shafts, nuts and bolts (complete with shakeproof washers) and various lengths of wire. A Mashima 1833 motor comes with the kit but, if you want to convert to 4mm finescale Ultrascale wheels, you will need to source them yourself. The Formil kit is not concerned in any way with improvements to the proprietary body and it is assumed, quite reasonably, that the modeller will provide things like adhesives and lubricants (the appropriate brands, however, are specified). There is an instruction manual of exemplary comprehensiveness – it even steers you towards the kitchen from time to time to make coffee while the Loctite goes off – and a separate handbook called *The Dyna-Drive Experience*, which tells you how to drive the thing once you've finished converting it. A fold-out same-size drawing shows you where everything should go and can be used if required as a template for drilling and positioning the components.

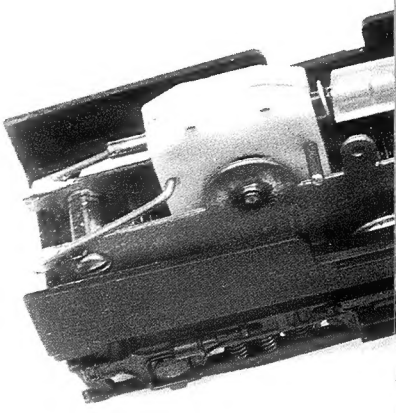
The level of detail in the instructions led me to assume that upgrading a Lima chassis to Dyna-Drive would be a long drawn-out operation but in fact the conversion was surprisingly quick. If anything, it took me longer to read through the manuals than to do the actual work. The whole operation could be accomplished in a single session but there is no point in hurrying, especially where precision components are involved. In broad outline, the process involves taking out the Lima motor bogie and putting it away somewhere, ready for that Kitmaster Deltic motorisation you will never actually quite get round to. Then you reassemble the chassis with the Dyna-Drive components in place. This is a fairly quick and painless operation although the new motor, clutch and flywheels (mounted in brackets with integral ballraces) need to be installed with care. The instructions give precise locations for the various holes that need to be drilled for fixing screws. Depending on the class being modelled, some small modifications may be necessary to the Lima chassis to accommodate the new fittings, but this amounts to little more than a modicum of sawing and filing. Very little is required by way of preparation – except when completing the wiring, there is no bending, forming, filing or soldering to do.

Although Lima's excellent bogie sideframe mouldings are retained in the conversion, Formil provide a complete new power bogie in kit form, with etched inside frames, idler axles, gear pinions and the Brimalm gearbox. A 15:1 gear ratio is supplied as standard but I opted for the 26:1 alternative which gives slow-speed running more in keeping with a heavy freight locomotive. The Formil bogie rather resembles the kind of thing DJH might produce if they went in more for diesels. I was a bit suspicious of the screw-in spacers but there is no room for the L-shaped spacers I normally prefer to use. Once assembled by the book, however, the whole assembly seemed reassuringly square and robust and the Lima bogie moulding could then be clipped back into position. One's every instinct is to do something to bring the brake blocks in line with the wheels but removing them from the bogie would, I feel, severely compromise the structural integrity of the moulding. The plastic is that waxy kind which is very difficult to get anything to adhere to and this made me leery of cutting the bogie up and reassembling it with a more accurate representation of the brake gear.

The power bogie is designed to run with bearings on the outer axles but not, strangely, on the centre one, which is allowed a degree of fore-and-aft slop for negotiating train-set curves. Under certain conditions I found this had the effect of permitting the pinions to wander momentarily out of mesh and, in extreme cases, caused the power bogie to slip under load. Stripping down the bogie, I found that the centre axle holes had already worn down to an oval shape. I didn't think this was engineering of the highest order, so I fitted bearings to all axles to keep everything tight.

The motor shaft simply plugs into the clutch, which is joined to the flywheels by a cardan shaft. A second cardan takes the drive from the flywheel to the gearbox; a reduction gearbox can be interposed if required. The instructions give precise dimensions for cutting the cardans' steel shafting and silicon tubing to length. After that, there is just a little rewiring to do before the conversion is complete. The kit contains inducers and transducers which I duly wired up but, being an electrical ignoramus, I have to admit I hadn't a clue what their function was. Following the instructions carefully – and John Lythgoe, being a writer as well as a professional model maker, really has gone to extraordinary lengths to make them idiot-proof – I built the chassis one step at a time and got it running on the bench before any track testing took place. One thing that surprised me, however, was how critical the various alignments seemed to be when I was setting up the drive train. I had carefully drilled the screw-mounting holes for the flywheel brackets and the motor plate and set the ballraces up at the correct height. I am not the greatest mechanical engineer in the world but I had everything that was potentially variable as true as I could reasonably make it. The initial results, however, were disappointing. Allowing for a running-in period, quite a bit of gentle nudging and tweaking was still necessary before things began to run as consistently as I had expected them to. Sometimes the clutch would engage while the motor was barely ticking over and, at other times, the Mashima would be practically bursting a blood vessel before things started moving. Forward and reverse running would produce different results and occasionally the clutch appeared not to disengage when the motor was switched off. The noise, at times, was alarming.

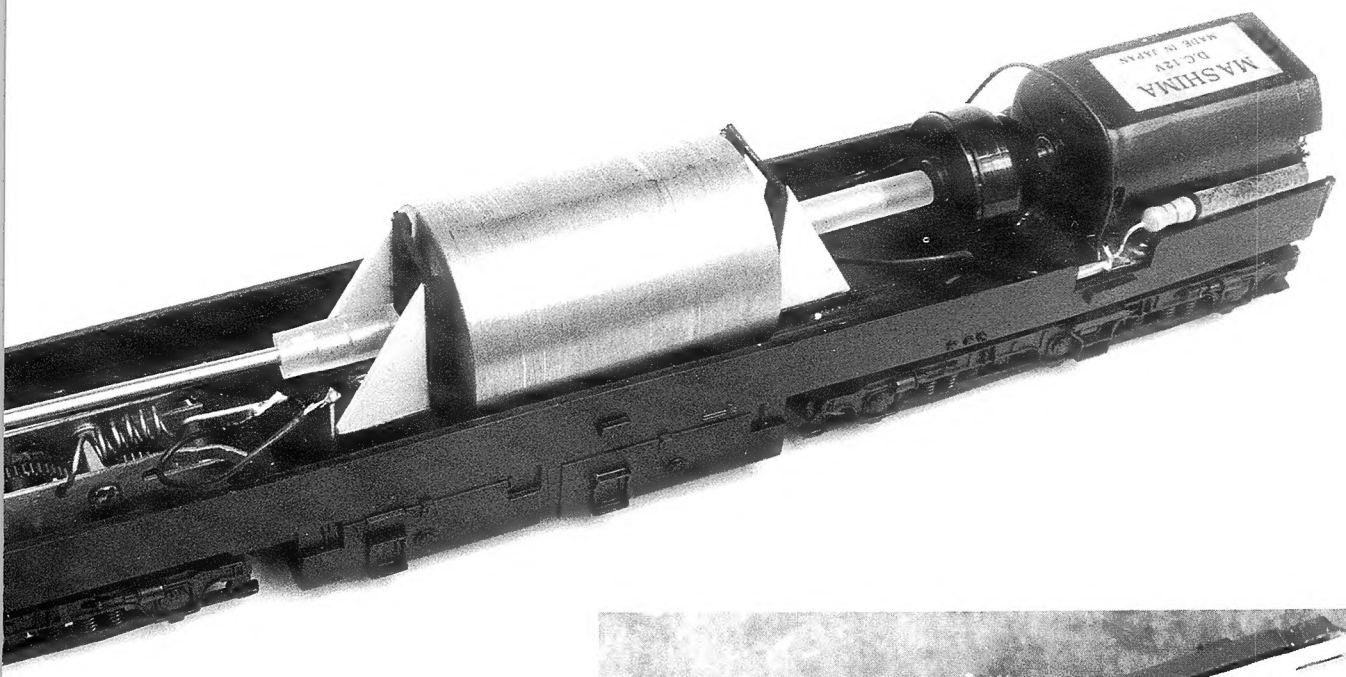
My first reaction was to check and double-check every alignment in every dimension. The Dyna-Drive components are undoubtedly manufactured to demanding tolerances but there seemed, somehow, to be an element of hit-and-miss about the setting-up procedure that just didn't feel right. Engineers may measure with their verniers and voltmeters but I tend to work in a more intuitive way, like a blind piano tuner. I can hear problems when motors or gears aren't running as I think they should; I look for

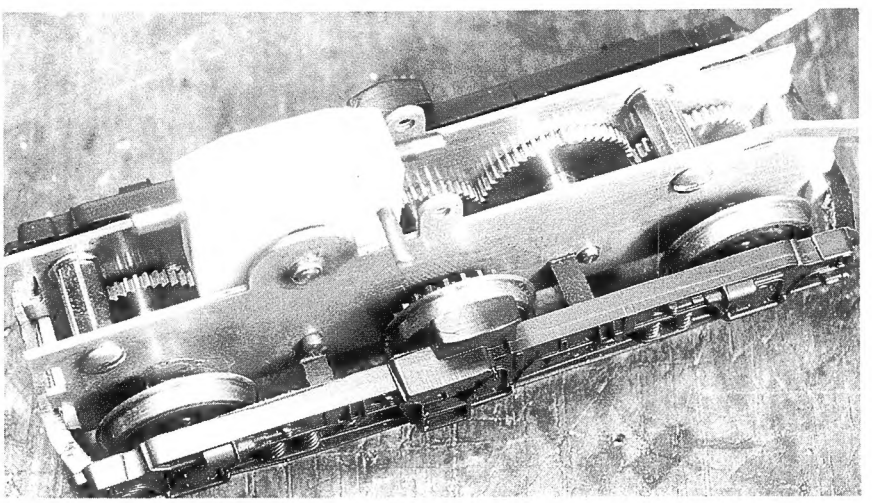


little shudders, feel if things are hotter to the touch than they ought to be. For me, it is a matter of observation and then elimination. Sure enough, with careful packing of the motor and fine adjustment of the various fixing screws, everything eventually did come right and the standard of running was very high. Unfortunately, this deteriorated after an hour or so of bench-testing. Rats were smelled and my suspicions focused on the clutch, which was beginning to chatter and wobble quite noticeably. It is worrying indeed when £100 worth of gear seems to be running no better than a second-hand X04, and so, in that state of barely-controlled panic familiar to many who like to meddle with gearboxes and suchlike, I called Formil. John Lythgoe immediately suspected a lack of clearance on the clutch input bearing, a suspicion he confirmed when I sent it back for inspection. A small batch that was sent out from the Brimalm plant in Sweden in 1994 had suffered from this problem and I was one of the unlucky ones. Because of this experience, John now dismantles and assiduously checks all incoming components. The replacement clutch he sent by return of post was absolutely fine and got better still with a little running-in.

My opinion of Dyna-Drive changed dramatically, from thinking of it as an over-engineered system requiring infinite levels adjustment, to the more accurate view – that it is brilliantly simple and scarcely any more difficult to install and get running than a Portescap. A word of warning, though: a fixing hole drilled a few thou out of true may cause alignment problems which the inherent flexibility of the plastic underframe moulding may, according to circumstance, either accommodate or compound. Chastened by my unfortunate experience with the faulty clutch, I opted not to lock the various components in place with cyano adhesive in case there were difficulties later. The major bits do not come cheap and, being made of high-quality plastic, are liable to damage by a rattled modeller trying to break strong adhesive bonds in an effort to track down a problem.

All proving work had taken place on the bench, at first without the power bogie and then with. With just the flywheel load, there may be insufficient frictional load to test the clutch properly and Formil recommend that testing be done as close as possible to actual operating conditions. So, once wiring of the pick-ups was complete, it was time





The Dyna-Drive chassis complete. From left are: power bogie with 26:1 Brimalm gearbox (note torsion bar securing it to side-frames); cardan shaft with Exacto-scale ball and socket couplings at either end; flywheel running in ballraces; rear cardan shaft; Brimalm clutch unit and Mashima 1833 motor.

Close-up of the Dyna-Drive power bogie, showing the spur gears. The gearbox will be held in place with a torsion bar when it is installed in the chassis.

for the real thing. Not being entirely sure what to expect, I approached the initial taxi-ing trials with the caution of a Morris Minor driver sliding down behind the wheel of a Lamborghini Diablo. As predicted and forewarned in the instruction manual, nothing happened at first – the motor ticked over but the clutch and flywheel were stock still. The flywheel only began to roll when the clutch engaged as I built up power and then the loco slowly eased away. I pulled back a couple of notches and, with the motor still idling, the loco came to a very gentle stop indeed – I had, in effect, stalled if. A little more power and the flywheel began to roll again. The chassis made slow and stately progress at a scale 5 mph for a yard or so and then I cut the power and it ran on very easily for a few inches. Controller into reverse, motor idling, build up power and then we trundled cautiously back to the starting point. A continuous running track would obviously be the best way of testing the loco's capabilities but I was restricted to six feet or so of clear siding space on my industrial layout which normally sees nothing larger than a Barclay sixteen-inch.

Once I got used to it – and track running is very different to bench testing – it was amazing how different driving a Dyna-Drive loco is compared with a conventional system. I use the word 'driving' deliberately, because it is not merely a matter of controlling operations. The engine appears to have a life and momentum of its own. Watch the way a main-line diesel locomotive moves around light – start off, coast, burst of power, coast, stop, reverse, burst of power, coast. I found this very easy to replicate with Dyna-Drive. Backing the model down, dead slow, little blips of power keep it rolling effortlessly over notorious sticking points on my all-too-accurate industrial pointwork. With those heavy flywheels whirring round, nothing will stop its regal progress, even at the slowest speeds with dirty wheels on tarnished track. If the moment of cutting off power is precisely judged, the loco glides to a halt at the determined spot with every impression of a gentle brake application on the 100-ton prototype machine. Starting off, the build-up of power is like watching one of those slow-motion films of a flower unfolding – gentle at first, but then increasing and irresistible. The kind of running that epitomises just what Dyna-Drive is capable of is that classic sequence at Pendon when the 28XX, having brought its 100-wagon freight to a dead stand, gradually moves away, taking up the slack in the couplings one by one. Dyna-Drive does this kind of thing more or less straight out of the box.

Switching to a Pentroller refined the running still further, although the sound took on a thin, piping note which I didn't greatly care for. I got a much more fruity noise from an ECM Compspeed. Dyna-Drive invites this kind of cross-reference. As a case in point, the 37 had been sharing bench space with a large modern tank locomotive which I had built with 80:1 twin-reduction gears, beam compensation, wiper pick-ups and all the usual refinements of gracious living. I gave the tank a spin along the track for comparison and it was no contest. Driving the 37 was like being on the footplate of the real thing, but the tank engine was a motor on the end of a couple of wires – turn the controller back slightly and it stops, put the power back on and the engine does exactly what it is told, nothing more, nothing less. The engine seemed inert without the added dimension of mass and momentum that Dyna-Drive gives. I was reminded, in different ways, of when I first bought a car with fuel injection or moved from a manual typewriter to a

A view of 37238 as, working in multiple with 37104, it powers northwards from Ely with a heavy Freightliner working on 19th September 1988. I had this image very much in mind when working on the Dyna-Drive conversion. Modelling is – or should be – as much about our emotional reponse to the subject as the minutiae of detail differences.

word processor – the boundaries of experience opened up in totally unexpected ways. Ignoring the attractions of Trent Bridge as Brian Lara filled his boots with runs, I spent the best part of a hot summer's afternoon simply trundling the engine back and forth, back and forth. I was hooked.

As the components bedded down and lost their stiffness, that benchmark of good running, the 'barely perceptible crawl', became increasingly attainable. Running-in proceeded to generate incremental improvements. The addition of 220g of car balance weights over the power bogie – the total adhesive weight is in the order of 560g – cured a tendency to slip on rising gradients and significantly reduced noise levels. Experience led me to make two small and simple modifications to the Dyna-Drive system as supplied in the kit. One was to fit a washer at the driven end of the gearbox to act as an oil thrower – a quantity of grease had leaked out along the drive shaft and I didn't want it on the cardan. The other was to upgrade the forward cardan shaft to incorporate Exactoscale ball-and-socket flexible couplings at either end. There was nothing particularly wrong with the existing Neoprene tube linkage – I have used it on other locos with perfectly acceptable results – but the UJs seem to have more engineering sophistication about them. I had just the trace of an impression that the loco ran better as a result. The Exactoscale system is, of course, based on 3/32in diameter components and adaptor sleeves are necessary for the 2mm diameter gearbox and flywheel shafts of Dyna-Drive.

Basic butchery – glazing removed; cab front windows and headcode panels opened out; slots cut for roof-mounted horns; roof ribs and boiler exhaust removed; front handrails carved off; holes for sandbox fillers and handholds drilled out and enlarged; cab roof vent cut off (to be resited in correct position); lower bodysides filed down to accentuate tumblehome; livery details rubbed down to facilitate repainting.

THE BODY

And so on to the bodywork. The quality and accuracy of most of today's RTR diesel bodies is so high, and the available range so broad, that a proprietary model is the obvious basis from which to work. I don't think I have ever seen a scratch-built main-line diesel, while the number of decent kits is miniscule. As it nears its tenth birthday, however, Lima's plastic moulding still looks very well. There is much to praise but, inevitably, there are faults and compromises. Lima have a tendency to produce hybrid models – their '08', for one, is a real bitzer that follows no known prototype – and so it is with the '37'. Apart, obviously, from the horrible wheels and couplings, it was pretty accurate when it began life as a typical machine of the mid-80s, with oval buffers, split headcodes, gangway doors and steam-heat facilities but no longer carrying the buffer beam fairings with which the '37s' were built. The basic tools have since been modified to represent a wide range of sub-classes, and inconsistencies have crept in. The changes in nose-end detail have been nicely caught but the same roof moulding appears to have been used throughout the production run, though it is only correct for those Class 37s that were built (and most, unfortunately, weren't) with steam-heat boilers and the prominent transverse roof ribs at No. 2 end. This feature is found on the 119 gangwayed, split-headcode machines that were the first Class 37s to be built, after which the gangways were deleted and one-piece centre headcodes substituted. It is perfectly easy to modify the roof for any of the non-boiler locomotives although the 37/9 sub-class – rebuilt with Mirrlees or Ruston engines instead of the original English Electric power plant – have new roof panels of a totally different pattern to the rest of the class.

Another possible anachronism concerns the bodyside hand-holds with which the '37s' were built but which have been blanked off on many refurbished machines. There are two other major shortcomings: those awful front windows (easily rectified by filing or, better still, by substituting Craftsman etched window frames) and a body-skirt wrap-under that is less pronounced than it ought to be. I'm not sure how this latter problem can be put right, if at all. I filed the tumblehome down as far as it would go, but it didn't make an awful lot of difference to the outward appearance. Road dirt collects in this area where it evades the brushes of the washing plant, and careful weathering can marginally emphasise what little curve there is.

Most proprietary bodies suffer from detail that is too clumsy, but here, paradoxically, the reverse is the case with detail that is sometimes unduly understated. At a scale three inches across, the bodyside handholds are much too petite. The cut-outs for the sandbox fillers are similarly undersized and need careful opening out. The brake cylinders and some of the other bogie details aren't quite meaty enough although they will satisfy most people. Cab handrails are marginal – I chose to leave them as they were but changed the nose-end ones for brass wire. Otherwise, I think the level and quality of detail is excellent, especially the rivets and louvres. The roof fan moulding is a superb piece of pattern-making and it was the first thing that caught my eye when I saw the early production models. Ironically, a popular modification is to open out this grille and substitute the etched grille and fan available from A1 Models. Since the void beneath is usually all too easy to see – it would, in a Dyna-Drive model, afford an excellent view of the clutch and rear cardan – I remain to be convinced that this is actually an improvement. The etched mesh is much too coarse anyway, resembling a tea-strainer. Carefully dry-brushed weathering will show Lima's brave effort to maximum advantage.

To digress for a moment, there are two criticisms I would levy at many of the so-called upgrading and conversion parts available from the after-market trade, in which direction I have thrown quite a bit of the hard-earned over the years. The first point is that they can be just as clumsy and/or inaccurate as the existing

These two green-liveried Class 37s, D6745 and D6746, were practically brand new when photographed at Sheffield Victoria in July 1962.

fittings on an RTR body. Secondly, they are often items that all but the most ham-fisted bodger could fabricate very quickly – and perhaps more accurately – from a few scraps of brass or Plastikard. You don't need a lathe to make a pair of air horns, for example. They can be turned from brass rod in the chuck of a mini-drill using ordinary needle files and it is very satisfying to attempt these things, even if it is hardly a cost-effective operation compared with buying-in. The absolute limit, to my mind, has to be marketing little rectangular brass blanks and calling them works plates.

Already having a green-livery, split-headcode '37' that is typical of the D6700-6818 batch, I wanted one in the form in which the other 190 members of the class were built, with centre headcode, round-head Oleo buffers and side skirts faired into the buffer beams. The numbers ran from D6819-6999 and then back-pedalled to D6600-8. Apart from boiler-fitted Nos. D6959-68 in the Sheffield district, the centre-headcode versions were all based initially in South Wales where, between 1963 and 1965, they congregated in ever-increasing numbers, fresh from the builders. In 1966-7, however, almost half the Canton/Landore '37s' were transferred to the North Eastern and Scottish Regions where they replaced the last of the indigenous WD 2–8–0s on general freight work. In subsequent years, they have been scattered the length and breadth of the country, from Fishguard to Felixstowe and Caithness to Camborne.

The green-liveried centre-headcode version represents the largest single batch of Class 37s and yet, paradoxically, it seems to be just about the only version Lima have not so far modelled. My choice was influenced both by having seen a number of them being built at the long-closed English Electric/RSH works in Darlington in 1963 and also by their appropriateness to my own modelling interests, which are centred principally on the North Eastern Region in the latter days of steam. Distinguishing features of the forty Darlington-built locos were the unique cantrail grilles with additional vertical bracing, but otherwise, the centre-headcode '37s' seem outwardly to have been pretty similar. To be pedantic, I should add that D6875-92 and D6959-68 were built with steam-heating facilities and had a boiler exhaust port as per the Lima moulding. The non-boilered locomotives had only a through heating pipe and the exhaust was blanked off with a rectangular plate which, no doubt, someone markets for a pound or so. Many of these locos also had, of all things, brackets for train headboards above the headcode panel. Around 1964-5 I remember the Class 37s being used in pairs out of Paddington on high-speed expresses to the West – 'The Bristolian' and suchlike. It came to nothing but it might provide an explanation for the headboard mountings. The later '37s' didn't always have them but many of the others carry them to this day.

As built, the lamp brackets of the Western Region locos, sited on either side of the headcode panel, were to the GWR pattern but the ten centre-headcode machines originally allocated to the Eastern Region had BR-style brackets inboard of the marker lights with an extra one placed centrally above the headcode panel. Most engines now carry the BR pattern but many still retain their GWR brackets and several have or had both. Another variation is a small riveted nose panel directly above the coupling hook – I have no idea what its function is and why it should appear on some locos with the wrap-around buffer-beam cowling but not on the majority.

My prototype research, I should say, was concerned only with acquiring sufficient information for my own model in the relevant period, although one inevitably registers along the way the myriad variations that, especially in the last decade, have emerged within the class. It is not my place, obviously, to go into them here. As well as many articles and photo-features in the popular prints, there are at least four books devoted to the Class 37s which will help to identify the essential differences for those seeking them, although the information they present is often contradictory and incomplete. Comparatively few Class 37s have, as yet, been withdrawn. Their story is, of

course, still evolving and many of the class re-invent themselves with the regularity of a career politician. As ever, dated photographs rather than written records are the only way to ensure total accuracy and I envy modellers of the present-day scene who have the opportunity to go out and see for themselves just what is where and in which colour.

Having gathered together what I thought I needed to know, out came the knives, files, drills and saws, and off came the front windows, cab ventilators and the riveted ribs around the boiler compartment roof. I opened out recesses for the air horns on top of the cab and moved the ventilator back to its correct position for a centre-headcode loco, in line with the cab doors. The apertures for sandbox fillers and handholds were opened out to their correct proportions, drilling first and then finishing with a square-section file. I bought some new components but most were hand-crafted, not from any yen to make everything myself but because I thought that a lot of what was available from the trade wasn't very good. The cab front window frames, however, are from the excellent Craftsman etch which can be used as a template for cutting out the glazing before assembly. The windows will need gentle shaping to achieve a snug fit but any slight chinks that appear can be filled after with black Plasticine, a useful standby, worked in with the tip of a cocktail stick after painting. The bells of the airhorns – good ones are available in turned brass from A1-Railmatch – protrude forward of the cab windows and little nicks need to be filed in the frames to allow them to sit level. I found the replacement sandbox fillers a fiddle to make, not being entirely given to pushing sub-atomic particles of Microstrip around with the point of a scalpel. The filler caps alone have five separate parts which are best assembled in situ. The new handholds are short lengths of .33mm brass wire cut to length and offered up on the tip of a pair of pointed tweezers and secured with Humbrol Liquid Poly, which slightly softens the surrounding plastic so it grips the brass better. This stuff is very agressive and should be used sparingly; I only use it in situations where the gentler Mek-pak might not have sufficient bite. For an early-period Class 37 such as mine, the Lima body is one handhold short on each side – there should be an extra-long one above the triangular cut-out at the No. 2 end of the engine compartment louvres.

One significant detail of all green-liveried '37s' was the so-called 'frost grille' which protected the louvres of the engine-cooling radiators on the bodyside at No. 1 end. This was a sheet of 3/16in steel plate with hexagonal 1¼in holes punched through in a diagonal pattern. Scale Link's fine octagonal mesh (catalogue ref N7) does very nicely here and will suffice for about thirty locos of various classes. The holes on the real thing, by the way, tended to get blocked by oily muck which caused overheating; as a result, the grilles were eventually removed from most of the class (see Dave Carter's letter in MRJ No. 2). Very few, if any, of the '37s' have them now. The grilles have a metal frame around them which I represented with Microstrip, well thinned down and again secured with Liquid Poly. Unlike the bogies, the body-side moulding takes the usual plastic adhesives very well.

During the course of proceedings, I happened to take the lid off my earlier, split-headcode Class 37 and had quite a surprise – it had cab fittings. I had entirely forgotten they were there, which shows how visible they are. On a steam loco with anything like an exposed cab, I will model every visible detail, but with diesels, I really doubt if it is worth the trouble. I have an '08' with a lot of interior detail and, despite the windows being deliberately modelled open, not much of it can be seen, even through the picture windows at the back. All I think is needed is a suggestion that there is something there, that the cab is not just an empty space. Given appropriate stimuli and a familiar subject, the eye will see what it wants to see – an aspect of perception of which Iliffe Stokes, for one, was fully aware. On a Dyna-Drive Class 37, one cab is largely filled with the motor and the other with the gearbox and ballast, and so for D6864 I settled for a rudimentary cab interior with seats, rear bulkhead and a shadowy crew figure, and relied on the imagination to conjure up the rest. The open windows, of course, help suggest animation.

I feel that two aspects of the conversion work may contribute more than any other to the character of the locomotive. One is the actual headcodes, which I will mention later, and the other concerns lowering the body height by a couple of millimetres. Few things, I think, contribute more to the illusion that a model locomotive is a heavy, powerful piece of machinery than the apparent centre of gravity. Most prototype diesel classes, the '37s' more than most, sit quite low on the track and one of the problems that con-

Detailing work is concentrated on the front end. Some of the components are already in place and work has begun on reinstating the fairings around the buffers, using Microstrip and Milliput. The buffer beams themselves need to be removed from the Lima chassis moulding and Araldited in place on the loco body.

Not quite Vulcan's forge – or even RSH – but a Class 37 has emerged from the usual workbench disarray resplendent in a coat of white primer. After further attention to rough spots and blemishes, it will be ready for the paint shop.

cerned Wilkes Ashmore, the design consultants who advised on the visual styling of BR diesels in the 1950s and 60s, was to find a way of lifting this baseline to give an impression of speed. They did this by creating an illusion that the loco had, in a manner of speaking, hiked up its skirts and made a dash for it. The 'cheat lines' along the lower flanks of the Brush Type 2s and other classes gave way to the lime green band around the Hymeks and Deltics, all of which served to lift the apparent centre of gravity and enhance the sense of speed and purpose. I remember studying a blue Deltic outside Gateshead shed in 1966 and thinking how much heavier and slower the diesel classes looked in their new all-over corporate livery.

Our problem is the reverse. Like Randolph Scott, model diesels ride tall in the saddle, especially Lima's. This is to enable them to negotiate 12in radius curves at a scale 180 mph, but for finescale operations, we need to cut them down in order to create the illusion of track-hugging weight. This, mercifully, is a straightforward operation on the Class 37. On top of the trailing bogie, where the brass chassis-fixing lug emerges, there is a plastic boss about 1.5mm deep. While the bogie is dismantled to allow the Ultrascale wheels to be fitted, this can be cut off, along with the corresponding boss on the underside of the chassis. On the power bogie, the ride height is governed by a pair of lugs above the centre wheels which bear against the underside of the chassis. These should be trimmed down by an amount equal to that taken off the trailing bogie and smoothed off; a little grease may be necessary as this is a bearing surface. A whisper might need to come off the brass Dyna-Drive power bogie where it touches the bodywork at the front end. When the body is replaced, it will be a scale six inches lower and the impression of a hundred tons of heavy metal on the move will be greatly enhanced. I parked modified and unmodified locos nose to nose and studied the difference. It was almost as pronounced as that between prototype locos with such distinctively high and low bodylines as the 'Westerns' and the 'Warships', or the '59s' and '60s'.

The Class 37s were built with side cowls or fairings that continued around the buffers to the front of the loco. For whatever reason, these were cut away in the early 1980s to expose the whole of the buffer beams, as on the Lima model. Restoring the fairings is not easy, as the buffer beam is a part of the chassis. The buffer beam therefore has to be cut off and glued to the plastic body with a potent adhesive such as 24hr Araldite – the Dyna Drive Class 37 is quite capable of exerting a drawbar pull of 170g so the strength needs to be there. The fairings can be built up with Plastikard and Microstrip, smoothed off and filled with Milliput. This is not a particularly elegant operation but I could see no alternative. By way of recompense, building up all the pipework and cable runs around the front end is great fun. There are eight connections at each end, with their related feeds, and their proliferation adds greatly to the appearance of the nose end. A basic detailing kit is available from Craftsman but I preferred, as usual, to go my own way. Vac pipes are Mike Trice's hanging type (ref 2951) and the steam-heat through pipes are from ABS pack U29. All other pipework is soldered up from scraps of wire in various thicknesses. Turned brass Oleo buffers came from the now-defunct J&M, but there are other sources, such as A1-Railmatch. Exacto-scale's working screw couplings seemed the natural choice for a loco that is a little out of the ordinary and besides, this is MRJ. They were not fitted, for obvious reasons, until painting was complete.

My Lima model was in the original Railfreight livery of grey with yellow nose. I erased the nameplates, numbers and BR symbol in case they showed through and then, after a wash and brush-up in household cream cleaner, I sprayed the whole body white, which revealed a number of blemishes which had to be put right. With all the patches, added detail and general worked-on grubbiness – there are over 80 replacement or additional parts on the body alone – this particular 'Growler' had looked a real dog's dinner but now it appeared, for the first time, as an integral whole. Warning panels were airbrushed in enamel paint from DBI, followed by the roof which, as I remember it, was in quite a warm shade of grey, achieved by mixing Humbrol pale grey (No. 40) with a measure of sea grey (No. 27). After masking, the rest of the body was sprayed with Railmatch BR green (No. 300). Though I think nostalgia is, by and large, an invidious and unhealthy melancholy, it is surprising how often modelling can strike little chimes of memory and in its unadorned, un-numbered state, the engine quickly took me back to Christmas 1960 and the appearance in the shop windows of another Co-Co, the old Hornby one that, reliveried, was the basis of their Deltic. Disappointed by its drabness, I think I settled for a Meccano set instead – but I digress.

Buffer beam red is a very particular colour and here I used what DBI vaguely call 'London Transport red' which has the right orange tone. The headcodes are photographically produced and came from the extensive Formil catalogue. Better than any transfers I have seen, they capture exactly the letterforms used on the prototype. They are also much easier than transfers to apply and though they come as complete codes, a degree of mix 'n' match is possible. Here they are assembled on a rectangle of Plastikard and then glazed – they need, obviously, to be a snug fit in the nose aperture. Like the other graphics, the numbers came from the Woodhead Models sheet of BR loco lettering and were applied to strips of waterslide transfer paper (Impetus) which had been sprayed BR green. I find this is much easier than trying to apply numbers directly and if the carrier film is trimmed very close to the numbers it does not show at all. The transfers, once in position on the transfer film, need to be left overnight for the adhesive to settle down or they may float off along with the backing paper while they are being soaked.

The weathering of diesels is a subject on which a separate article could and ought to be written. It is not at all the same as weathering a steam locomotive or a carriage, in the manner with which most of us who aspire to realism will be familiar. Nor is it always possible, when modelling green-livery locomotives, simply to replicate the way Railfreight or similar liveries weather today. Modern locomotives frequently pass through mechanical washing plants and this does strange things to the accumulations of oil, road dirt, brake dust and general grime – as depicted so vividly on Ian Metcalfe's model of *Indomitable* in his article in MRJ No. 50. Before automated cleaning became the norm, diesel loco filth was an all-over variegated coating whose characteristic features were oil-soaked bogies, fly-spattered front ends, fume-blackened roofs and trackwork-coloured bodysides that were liberally smeared by leakages of fluids of one kind or another. You still see these elements today, of course, except that they become rearranged by the mechanical washers.

My method is to find a good colour photograph of the kind of thing I want – Ian Allan's *Rail Portfolio* series is useful here – and try and replicate it as exactly as I would model any other detail of a locomotive. Paint what you see, not what you think is or ought to be there. I airbrush the basic weathering using Humbrol Matt Leather (No. 62), Tarmac (No. 112), Satin Black (No. 85) and Metalcote Gunmetal in varying proportions, and then get to work with cotton buds, clapped-out paintbrushes, sandpaper and anything else that will make a suitable mark, especially Hubert Carr's range of greasy powders. The military modellers have this down to a fine art but, however good it looks on an AFV, you will not find many areas of rust or bare metal on a main-line diesel. It is important, however, to have a suggestion of oily surfaces (I use an 80:20 mix of Satin Black and Tarmac and hold the airbrush up close to the work to get this effect) and a little non-accidental splashing and spattering caused by under-thinned paint may be no bad thing. Having weathered every model I have built in the last 30-odd years, right back to my three-rail days, I can say that it is 90% a matter of prototype observation and 100% a question of technique. Martyn Welch's superb study, *The Art of Weathering*, is essential reading and most modellers will

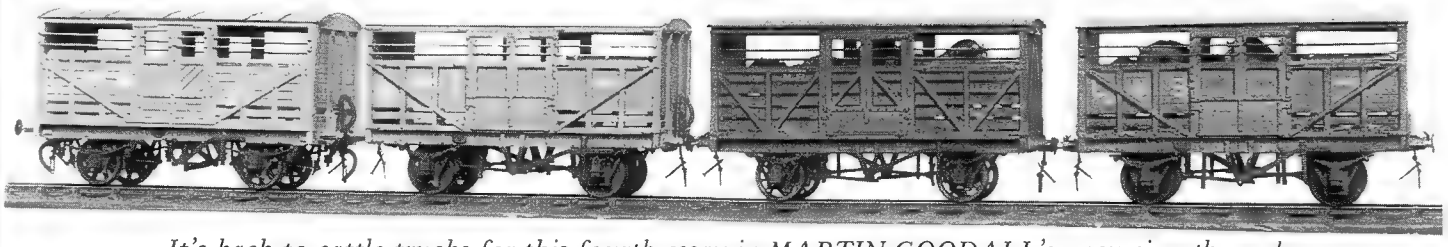
be able to drum up an old plastic body on which to practise. It doesn't have to be a loco and for years I have used for experiments an anonymous continental open wagon acquired for 5p at a jumble sale.

Once I was satisfied with the paintwork, all that remained was to flush-glaze the windows – I painted a thin purple wash on the back of the windscreens to suggest the anti-glare coating visible in sunlight – and fit the high-risk details such as windscreen wipers. The final stage was to compare the model one more time with prototype photographs and see what details I had failed to spot – there are usually one or two. I'd missed out the coupling code markings and bogie sandpipes, while I chose to omit the guard irons, which seemed likely to foul the front-end pipework, and, for the time being at least, the brake operating levers, pending the discovery of suitably fine chain to connect them with the bogie cylinders. And that, effectively, was about it.

The day I took the photographs of the newly completed and painted model, I was using D6864 to marshal parcels vans. It was only a basic test track but somehow the impression of watching the real thing was extraordinarily powerful, inching forward on the controller, keeping the clutch just gripping until the buffers kissed, the engine still throbbing, and then building up power until the loco moved away again. The sound, which would perhaps be distracting in a steam-outline model, was an important part of the process. The effect was mesmerising, yet none of this would have been possible with anything other than a Dyna-Drive locomotive. From the spectator's point of view, its characteristics are less obvious in continuous running on the open road as they are with the kind of interrupted or repeated manoeuvres that, on the prototype, we have all watched many times – stopping, starting, crawling up to an adverse signal in the hope it will clear before a full brake application becomes necessary and then accelerating away, foot hard down, engine thudding lustily. Each movement is typical of how the real railway goes about its quotidian business – the prosaic, matter-of-fact quality that I find so fascinating about railway operations. Because the Dyna-Drive system so convincingly replicates the kind of running one sees in a real locomotive, it is, to my mind, an important step forward in enabling us to reach a new and exciting level in our eternal search for the illusion of reality.

Formil Model Engineering is at 12 Oak Tree Close, Bedale, North Yorkshire, DL8 1UG. Tel: 01677 424686

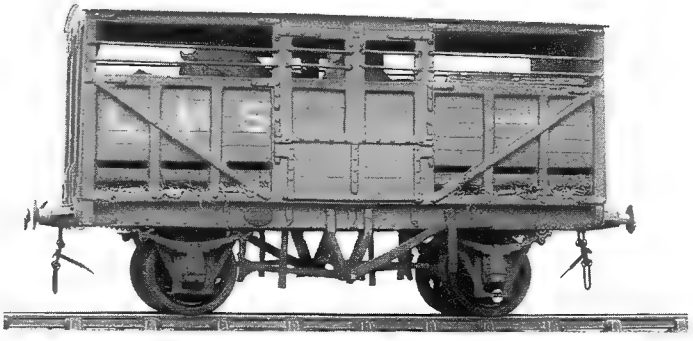
LMS Wagon Miscellany



It's back to cattle trucks for this fourth essay in MARTIN GOODALL's excursion through the LMS wagon diagrams book, which also takes a look at the techniques for assembling whitemetal kits with low-melt solder:

LMS CATTLE WAGON (D1661)

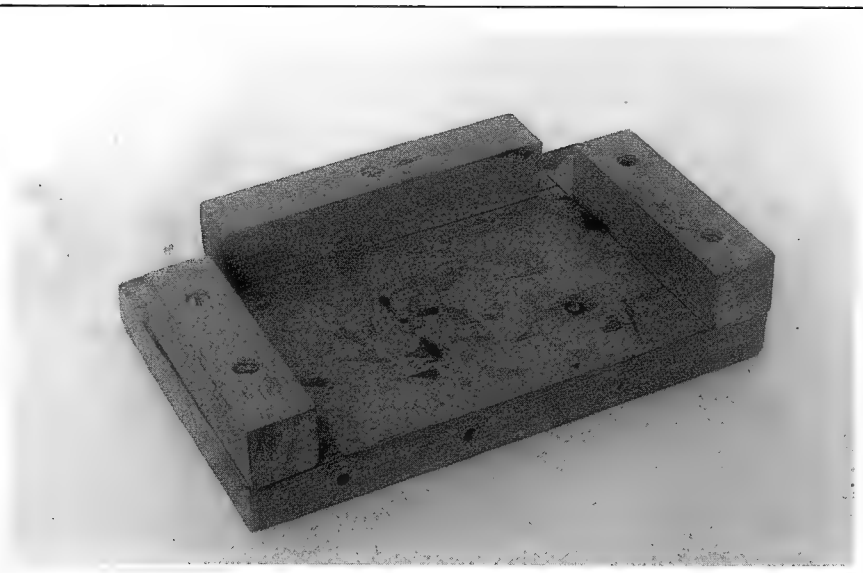
The main livestock market serving West Oxfordshire has always been at Witney, although Bampton used to be famous for its horse fairs. The market at Burford – the subject of my 4mm layout – was a small affair for local produce, and would certainly not have generated much in the way of livestock traffic. So I really cannot find a plausible excuse for the excessive number of cattle wagons which I have constructed for the Burford branch. Having built seven Great Western examples, I then added four LMS vehicles to the collection, not to mention a number of unbuilt kits for SR and LNER cattle wagons, and yet more GWR kits are lurking in the cupboard. I just happen to like building models of cattle wagons.



I have already described the Midland cattle wagon which I built from a Slater's kit. The other three examples represent the well-known design built by the LMS to drawings produced by the MR just before the Grouping. K's formerly produced a whitemetal kit, and I built two examples from this source. A revised version of this kit should be available from ABS by the time you read this (the third model was based on one of the early George Slater kits, to which I shall return later).

The K's kits were a bit basic, and were not supplied with floors. After the sides and ends had been assembled, a floor was made for each of the two wagons from 30-thou Plastikard. Partition guides were cut from 20-thou Plastikard and stuck in place with cyano, but I did not bother to model the partition itself. RCH four-rib buffers (ABS U03) were fitted, in place of the turned brass buffers supplied by K's (or they should have been; close inspection reveals that I fitted the later two-rib buffers to one of these wagons by mistake). I added vacuum pipes to one of the wagons, intending originally that it should represent a vacuum-braked vehicle. When I later realised that this would require substantially amended running gear, I decided that this model would merely be a piped vehicle, with the stand pipes painted red to denote this.

Attention was next turned to the underframe. My seemingly endless supply of the old Studiolith W-iron units provided the suspension for these vehicles, and disc wheels were fitted to both models. RCH spring/axlebox castings were added to the W-irons, with a gap between the spring hangers and the solebar at the compensated end, to enable the compensated W-iron unit to rock on its bearing (a rubber band, stuck with Evo-stik, as before). Having fitted the brake gear as supplied in the kit, I subsequently realised that outside V-hangers were also required. ABS castings (U19) were utilised for this purpose, and I remembered to add wire to connect the inner and outer V-hangers on one model (but not on the other, which had been built earlier). The two sets of brake gear were independent of each other and were not connected across the wagon.



SOLDERED ASSEMBLY OF WHITEMETAL PARTS

I have not previously described the construction of a whitemetal wagon kit, so it may be helpful to explain the methods I use. In the past, I have employed a number of different adhesives for joining whitemetal with varying degrees of success, but by far the best way to join whitemetal components is by soldering with 70° low-melt alloy. It is quicker and easier than using adhesives and produces a much stronger assembly.

The standard type of soldering iron (such as my 25-watt Solon) is too hot for this job, and I use a 12-volt 8-watt Oryx iron exclusively for low-melt soldering, but I always run it at full power. It is a mistake to use a really 'cool' iron; the solder needs to be hot enough to flow easily into the joint, without heating up the surrounding whitemetal. You are, in fact, less likely to melt the kit with a warmer iron, because you will not have to dwell with the iron on the joint in order to get the solder to flow.

The other essential is a suitable liquid flux. I prefer dilute phosphoric acid, and I still have a bottle of Eames '40 Flux'. I have recently managed to get hold of a new phosphoric acid flux supplied by Mendip Models of 10A Christchurch Road West, Frome, Somerset, BA11 1EQ (Tel. 0373 452522).

Finally, and perhaps most important of all, a means must be devised for holding the parts to be joined firmly and accurately. It seems unnecessarily grandiloquent to describe the simple device which I built for this purpose as a 'jig' or 'fixture'. It consists simply of an offcut from a piece of wood, about 6in x 4in (thickness unimportant, anything from 3mm ply upwards will do) on top of which, lined up with the edges, three pieces of 1in x 1in planed hardwood are screwed at right-angles to each other with a gap at the corners, leaving about 3/8in clear between the adjoining ends. When assembling a wagon body, only two of the three sides are used, depending on whether the corner is right-handed or left-handed.

To assemble one side and one end of a wagon, separate pieces of Blu-tak are pressed against one side and one end of the 'jig'. After any necessary filing of the castings to be joined, to ensure an accurate fit at the corners, the side and end castings are positioned on the board and pressed into the Blu-tak. Care needs to be taken to see that they are correctly lined up, and they are checked with a 2-in try-square to ensure that the assembly will be square.

The corner is then checked by eye from the outside (hence the gaps left between the pieces of wood) and when satisfied that the parts are accurately aligned and securely held together, I apply flux to the joint with a small paintbrush. Low-melt (70°) alloy is then wiped across the bit of the pre-heated iron, depositing a reasonable dollop of solder, and the iron is wiped smartly up the inside of the joint. The flux will boil instantly and the solder will be drawn off the iron into the joint as it travels up the seam. There is no need to rush at the job with the iron; you simply need to draw it up the joint in a single deft movement. It really is as easy as that.

Two further tips may help. First, it is a good idea to breathe in before applying the iron to the joint; this avoids getting a cloud of phosphoric acid steam up your nose, which tends to be irritating in both senses of the word. Secondly, if for any reason the solder does not flow satisfactorily into the joint, do *not* hang about with the iron heating up the workpiece; this is how kits get melted. Withdraw the iron, let the whole assembly cool down, apply more flux and try again with another dollop of solder on the iron.

I have never yet melted a hole in a kit using this method, although I did have problems in the past when I tried to do the job without a reliable means of holding the parts together. Finally, in order to reassure our more nervous readers, if you find afterwards that the assembly is not lined up correctly or is out of square, it is very easy to separate the parts without any risk of melt-down. You simply pour boiling water on them; the melting point of the solder (70°) is well below the boiling point of water, whereas the melting point of whitemetal is safely above that temperature. You will definitely not get the pieces apart by re-applying the iron, and any attempt to do so is almost certain to end in disaster.

The piped wagon was left empty, and the other one was loaded with horses in the same way as the Midland cattle wagon described earlier, with straw bedding poking out between the lowest planks. As previously noted when dealing with the Midland vehicle, the horses are not properly tied by their heads, so it is to be hoped that there are no RSPCA inspectors lurking around the station.

A whitemetal roof was supplied as part of the kit, but this was somewhat thick and, rather than attempting to thin down the edges, I replaced both roofs with 15-thou Plastikard, heat-forming it to the required profile by the same method as I had used when building my Great Western cattle wagons. This consisted of strapping the material with crepe bandage to the side of a 2lb Golden Syrup tin, which was then filled with boiling water. After a couple of minutes the hot water was poured out and replaced with cold water. A roof formed by this method will keep its curve permanently. Both roofs were given rain strips fashioned from plastic micro-rod.

Plastic kits need no priming before painting, but paint does not stick to whitemetal very well, so these two wagons were sprayed with Duplicolor grey car primer. You really do need to follow the instructions, and shake the can for at least two minutes to ensure the paint is thoroughly mixed. A very considerable quantity of primer is deposited in a very short time, so it is essential to move the can rapidly in a single pass at a distance of 8 to 12in from the model.

Do not linger, even for a moment, and do not be tempted to go back and 'fill in' any areas which have been missed. Two or three light coats are better than one thick one, waiting for a few minutes for the paint to become tacky between each spraying. I usually spray successive coats from different angles to ensure complete coverage. The whole model should be covered in not more than three passes; otherwise there will be an excessive build-up of primer on the model, which will obscure detail and round out internal angles.

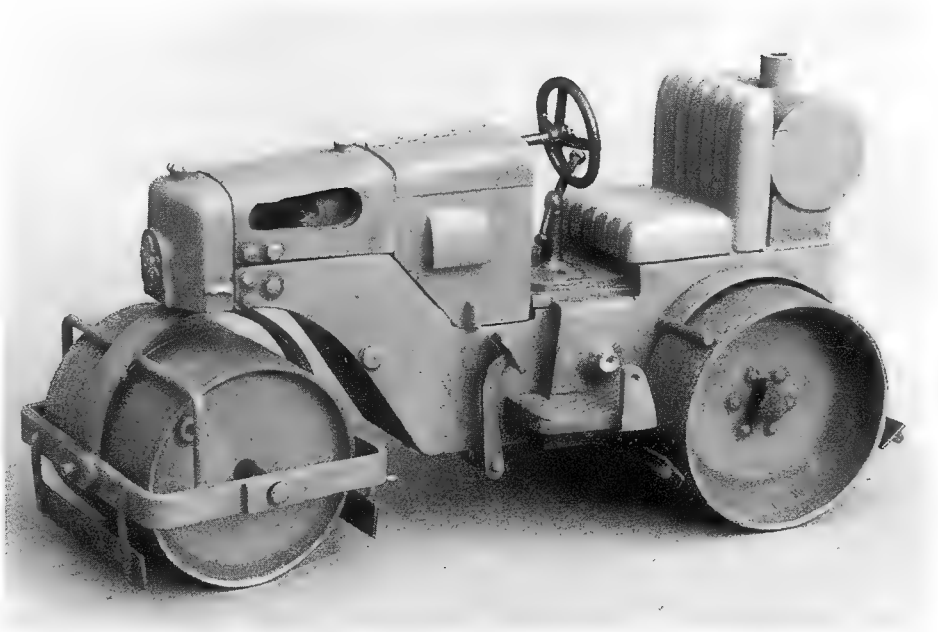
Although it dries rapidly on the surface, car primer remains soft for some time and is liable to be marked by handling. It will also be vulnerable to solvent attack if painted over too soon after it is applied, especially if brushed with paint thinned with white spirit. It should be left to harden for at least a week before the next stage of painting. If you are wondering how I know all this, I confess that I gained this knowledge the hard way!

Having sprayed the models with grey car primer and allowed them to dry, it dawned on me that the resulting colour was an exact match for LMS wagon grey, so that no further painting would be required. The colour really is indistinguishable from the other models, which were painted with LMS grey from Precision Paints.

PC (now HMRS) 'Methfix' transfers were used to apply lettering and numbering to these two wagons. Numbers were miscellaneous, and can be deduced only from photographs. Before choosing a number, it is necessary to check whether the drop-down lower section of the door was two or three planks deep. The K's kit represents the three-plank version. Suitable numbers include 230909, 265032 and 214875. I had numbered the models 12098 and 292722 (for the pipes vehicle) before I realised that both these wagons had a two-plank lower door – Murphy's Law strikes again! After painting, Smith's screw couplings (LP5) were fitted.

Municipal Workhorses

GORDON GRAVETT reviews some new O scale accessory kits:



Following the introduction of that remarkable ready-built industrial Garratt loco in finescale O gauge, Paul Berntsen's The Model Company has now produced kits for some familiar British municipal machinery, also to 7mm scale. They make up into delightful accessories and are ideal as roadside interest or for forming the centre-pieces of cameo features.

First is the Aveling Barford pavement roller, first produced in the late 1940s and used the length and breadth of the land by councils and works departments, right into the late '60s and early '70s. The kit is predominately whitemetal castings for the bulk of the body and rollers, with some of the finer details as lost-wax brass castings. The components of the front roller frame are also brass castings, which give a very delicate look but are also strong enough to be practical. Assembly of the cast parts – of which there are relatively few – is quite straightforward.

Some of the finer details, such as the roller scrapers, are left to the modeller to make up from wire and brass strip supplied in the kit. These would, presumably, have been very difficult to produce by the casting process used throughout the rest of the kit. The instructions take you through these procedures step-by-step, so although a little dexterity with a soldering iron will obviously help, it should not put off those who lay claim to two left fists. The photos show how uncomplicated this fabrication work is.

The instructions are quite adequate for the assembly of the basic model, but I felt the need of a bit more background information, and a photo of the prototype would also be helpful to those intent on adding extra refinements.

I particularly liked the idea of listing the tools required for construction – there is nothing more frustrating than discovering, part way through a model, that a drill of particular size – the one you always meant to replace – is crucial for the next stage. All in all, this kit captures the character of these common council workhorses well.

The second kit depicts a typical roadmender's small tar boiler – just the thing you'd expect to see working alongside the roller.

Like the roller, the kit comprises major items cast in whitemetal and the few smaller pieces cast in brass. There are also a couple of items of simple pipework to be formed from fine wire (supplied) which are fully described in the instructions.

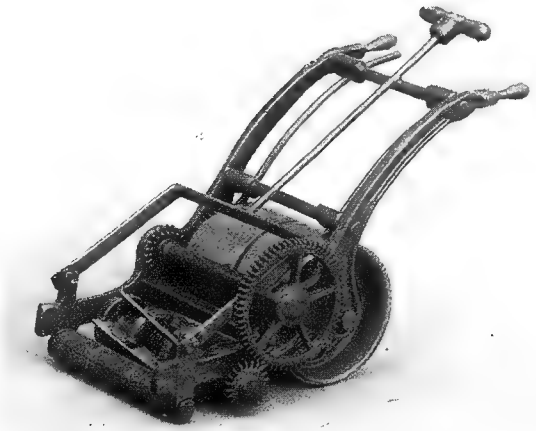
This is a typical and useful accessory, to either go along with the pavement roller or to stand alone amongst the general clutter involved with 'the black stuff'.

Finally, I would never claim to get very excited about lawn mowers or the cutting of grass generally. In fact, as I sit here typing this review, the thought is hanging over me that my patch needs savaging yet again with the Flymo.

The model featured here, however, is no lightweight domestic push-along, but a real heavy brute of the sort used on sports fields, etc. To quote the instructions, it could be 'operated by one fit man or two normal ones!' This particular mower – modelled on a thoroughly British prototype of unknown manufacture – has a handle for pulling as well as the conventional pair for pushing. It is believed the prototype dates from the 1920s and that it was aimed mainly at the municipal market, for use on verges, parks and school fields.

The kit comprises all brass components, beautifully cast with some wire and strip supplied for some of the finer components as before. I fixed this model together using superglue rather than solder and experienced no problems at all. The gears are cast so accurately that if a little care was taken to remove the feed sprues, I am quite convinced the blades could have been made to rotate quite easily, driven by the main roller, as per the prototype.

Painting such a model, with so much fine detail in the works, caused me to use a slightly unconventional approach. I misted the entire completed mower with matt black aerosol paint, being very careful to keep the spray moving and to avoid any build-up of paint. The main roller was brushed with a dull metallic steel and later the frames and gears were brush-painted, using an almost dry-brush technique so that inner faces and crevices only received a suggestion of colour. After this, the blades, front roller and handles received a similar treatment, any areas not reached by the bristles remaining dark and assumed to be dirty or well-greased.



Each of these models would make the ideal project for a couple of winter evenings or a wet weekend. Apart from being very well produced and relatively easy to put together, they are just crying out to be beautifully weathered – a process which will totally transform them, and show them as they would be in normal everyday use.

These kits are marketed in the UK (mail order only) by Bob Barlow's Classic Commercials at PO Box 800, West Wratting, Cambridge, CB1 5NB. The roller costs £18.20 (plus 75p post), the tar boiler and the mower £14.95 each (plus 50p post). Cheques payable to Classic Commercials. More kits will be announced in due course.

Misc.

WORKSHOP DANGER

Richard de Camin, producer of the excellent JigSawBits range of resin-cast kits and bits for 7mm scale stock – first brought to the hobby's attention in MRJ and subsequently discussed on a number of occasions – continues to produce his excellent, innovative products and will do so for the foreseeable future (indeed, at least one is due for review here soon). However, in view of recent discussion in our Letters pages on the health dangers of the various materials we use, he passes on the following cautionary tale:

"At the end of last year, I suddenly became sensitized (allergic) to the resin I use. Although I have always been aware of the possibility, it is rare, and I thought I was taking sufficient precautions. One of the constituents contains an Isocyanate compound which is a respiratory irritant. I do not know if I reacted to the new formula or a build-up over the years; however, the result was a violent cough. More worrying was the fact that I coughed up blood. I stopped casting as soon as I realised the connection, and a phone call to the manufacturers confirmed my suspicions. After a four-month lay-off, the cough came back as soon as I mixed the first batch, so I conclude this is for life. I must emphasise, that provided I do not breath the fumes, I am fine and can still work with resin in the cured state. My doctor has done some tests and assures me I have done no harm, but says continued exposure could give me asthma. I am told the various protective masks designed for use with chemical fumes and dust are not suitable, and a clean air supply fed direct to a face mask is required. Apart from the formidable cost, I do not relish looking any more like an escaped mutant from a sci-fi cartoon. It must be worth a warning, to other users, that you really do need to work in a very well ventilated room or use an extraction system."

THE LAST TEN YEARS . . .

Mike Trice, proprietor of MJT Scale Components and someone who has been on the leading edge of finescale development for many years, was recently musing on MRJ's 10th aniversary and began to list what he considered were major finescale developments in the magazine's lifetime. He chose, in no particular order, the emergence first of Malcolm Mitchell etched kits, then Martin Finney's kits, scale bullhead track by C & L, the introduction of resistance soldering units to the UK modelling fraternity, Comet coach parts and components, Ultrascale's 'drop-in' wheelset conversion packs for RTR locos, and the Dapol ready-to-run J94 in EM. Mmmm. Any other suggestions?

SOCIETY NOTES

The Scalefour Society has compiled a database of layouts as an aid to exhibition managers looking for 4mm scale layouts for shows. It currently contains nearly 100 layouts. Inclusion on the database is open to all Scalefour Society members with 4mm layouts to any gauge, and to non-members with layouts to P4 standards. If you have a layout and would like it included or if you are an exhibition manager looking for quality layouts for a show, contact Dave Booth at 53 Derwent Road, Honley, Huddersfield, HD7 2EL (Telephone 01484 661824).

We are delighted to learn that our good friend Peter Swift has been elected secretary of Epsom & Ewell Model Railway Club, one of the hobby's oldest and best. The club is active on a number of modelling fronts at the moment and anyone interested in joining is invited to contact Peter at 27 Harts Gardens, Guildford, Surrey, GU2 6QB.

'Leighford', the much-exhibited 4mm/OO layout (BR/ER) built by Wolverhampton Model Railway Club, is about to retire from the circuit and needs a home where it can settle down to a quieter life! It needs 32ft by 13ft and is not really capable of being cut down. It comes complete with legs and control equipment and a reference manual for the control system. Interested parties should contact: Terry Davis 01902 28084 (day) or 896153 (evening), Tony Wright 01902 75931, or Rob Kinsey 0121 526 3889 (evening).

A welcome to a new society for modern outline modellers, Diesel and Electric Modellers United (which goes by the neat and obvious acronym DEMU). It plans to cater for modellers of any aspect of the modern scene from modernisation to privatisation and beyond, and issues its first newsletter, called UpDate, about now. To get a copy, send four first class stamps to DEMU at 14 Langmere Road, Watton, Thetford, Norfolk, IP25 6LG.

A new society for anyone with an interest in studying or modelling the North Staffordshire Railway is being formed. Anyone interested can send a stamped self-addressed envelope to John Sherratt, The Hollies, Upper Leigh, Stoke on Trent, ST10 4NU. An initial meeting will be held around October or November in the Stoke area, in time for the 150th anniversary of the railway in 1996.

Hemel Hempstead Model Railway Society has elected a new secretary: Jim Belcher of 22 Squirrel Chase, Fields End, Hemel Hempstead, Hertfordshire, HP1 2TL (01442 257225).

From October, the Wreake Valley Model Railway Club changed to Melton Mowbray Model Railway Club. The secretary is P. H. Jones, 37 Sapcote Drive, Melton Mowbray, Leicestershire, LE13 1HG. (01664 67703).

Editor's note: Would reader Doug Ware of London E10 kindly contact the editorial office.

PULBOROUGH REVISITED

After more than a decade of effort, the Mid-Sussex 18.83 Group's magnificent 4mm portrayal of a little bit of the Brighton line is pretty well finished. BARRY LUCK brings us up-to-date:

So there we are. Eleven years after starting work on 'Pulborough', it's finished. Well, nearly – there's just the pair of railway cottages to build, and the canopy on the back of the goods shed which only the operators can see, and the fully interlocked control panel and the . . . well, complete-ish anyway.

When we started work in 1984 we had a vision of a true-scale model with no simplification or shortening of the plan, depicting a real main-line station, which, as far as I am aware, had not previously been done in P4. We also had no idea how long it would take to complete, which is probably just as well.

Pulborough is in west Sussex, on the main LBSCR line from London to Portsmouth just north of the branch running westwards to Midhurst. Set around 1910,

The height of summer – a first glimpse of Pulborough station along the leafy approach road.
Photos: PHILIP HALL

A quiet moment outside the station entrance, with a gig and driver waiting for passengers from the London train. The station building was the largest on this stretch of line, with lavish accommodation for the station master. The buildings still exist, although the goods shed is now a tyre/exhaust centre.

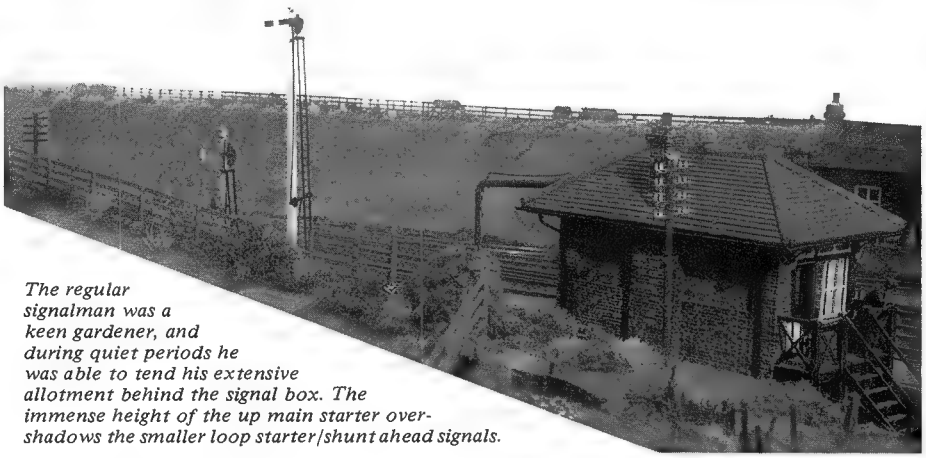
An unidentified 'I3' waiting for the 'right away', with the 9.3 Portsmouth Harbour to Victoria express. This view was taken from the road bridge at the north end of the cutting. The two lines on the left are the headshunt and lay-by, whilst those on the right are the up and down main.

the model shows a large station in its heyday, around the period when both Stroudley and the later Billinton liveries would have been seen. We are therefore able to run a wide variety of stock, and having a copy of the 1912 working timetable enables us to run the stock to a reasonably prototypical timetable, albeit rather more quickly than reality. Even so, it takes nearly eight hours to run through 24 hours activity at the station.

Much of the layout construction is conventional – 'dated' would perhaps be a better description, especially for the trackwork – and has been described in a previous article for MRJ.

I'm a firm believer that there are three elements which go together to make a good model, regardless of the techniques used, or scale/gauge combinations. These are keen observation of the prototype's construction and operation, good quality running of both trackwork and stock, and that last coat of paint (i.e. a good eye for colour). I'd like to think we've been reasonably successful in all three areas – and I hope that doesn't sound too arrogant!

For those who recall my MRJ articles on split-axle loco construction, a brief update on progress may be worthwhile. All of the locos described in those articles are still running and all retain split axles although many have now been converted to Portescap motors. This last is as much a function of extra cash availability as a desire to further improve running capabilities. It's noticeable, among other things, that engines with Portescap motors require much less frequent wheel cleaning than those with conventional motors,

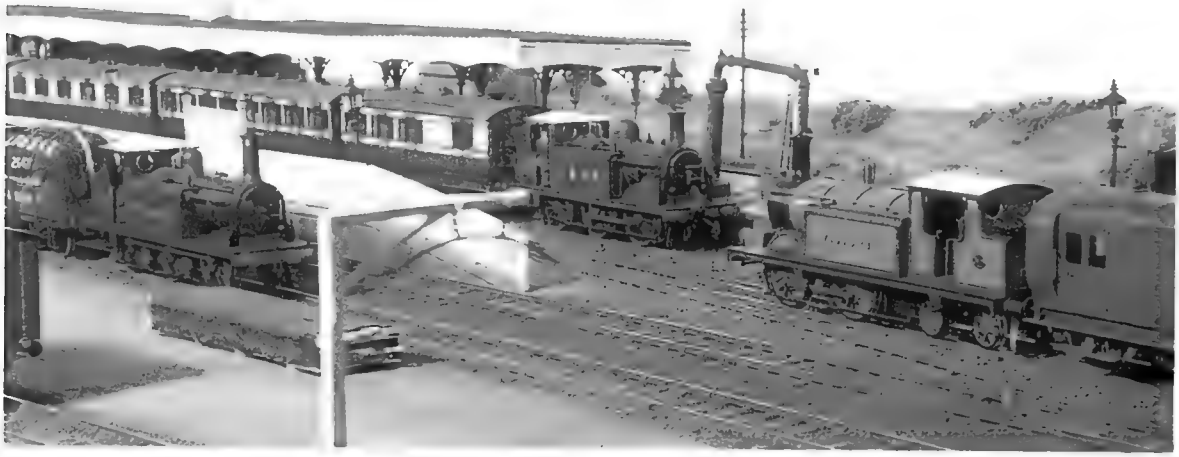


The regular signalman was a keen gardener, and during quiet periods he was able to tend his extensive allotment behind the signal box. The immense height of the up main starter overshadows the smaller loop starter/shunt ahead signals.

Stroudley 'E1' Strasbourg *on the 4.45 p.m. pick-up goods from Midhurst to Horsham, shunting the yard. The two labourers unloading the timber train face a heavy afternoon's work.*

A trainspotter's view from the footpath overlooking the yard, and the extensive canopy which dominates the island platform. On the right is the water tower with its unique pitched roof.

Another consignment of Burton Best and, in the background, the yard foreman checking the doctor's new car for damage.



This scene shows 'D1 No. 241 (formerly Stanmer*) waiting for the arrival of the connecting branch line train from Midhurst, while 'D3'* Victoria, *resplendent in Stroudley improved engine green livery, arrives with a mixed train of ancient four and six-wheel stock, bound for Littlehampton.*

A few moments later, the up starter is pulled off and No. 241 heads away towards London Bridge.

presumably because of the lower current drawn.

I've been asked many times about lubrication, and the answer is straightforward: use as little oil as possible, and use only Electrolube. The oil will eventually get contaminated and will need cleaning out. A spray of electrical switch cleaner will dissolve and remove the old oil and dirt.

When replacing the open-frame motors with Portescaps I've obviously had to strip down the chassis completely. Inspection of axles and bearings has shown only minor pitting of the axle surface, and in most cases all the components have been re-used in the rebuild. The only problems I've had with split axles has been the occasional failure of the epoxy holding the axle points together. As a result, I now roughen the surface of the spigot with a file, and the inside of the socket using a dentist's burr, thus providing a better mechanical bond between the various bits of the axle. I also now use Milliput to glue the parts together – it's a lot easier getting Milliput into the socket than ordinary sticky Araldite, which simply refuses to go into the hole!

My closing comment in those articles related to the perceived difficulties of building a fully compensated 4–4–2, and whether I would, as a result, change my mind about the benefits of compensation versus springing. The answer is yes, I have now built the compensated '13', and no, I haven't changed my mind.

One of the delights of building a model of a real prototype is, of course, that people recognise it and talk to us about their memories. At a recent show in Horsham (about 10 miles from Pulborough) a middle-aged man told us that his father used to work at the station. The

A rare view from the trackside, looking northwards, with 'E3' No. 165 being turned on the typical Brighton-style fully-decked turntable.

The late evening sun highlighting the last through train of the day, headed by No. 22, the first of the superheated 'I3s' on the Brighton. These engines showed the benefits of their low coal and water consumption hauling Sunny-South Specials when compared with LNWR locos on the same service.

Three Stroudley locomotives. 'E1' No. 100 in the foreground is finished in black goods livery, whilst 'D1' Rottingdean, *behind, was one of the last survivors to retain the original Stroudley livery. The other 'D1', substantially modified by D. E. Marsh, carries the later umber passenger livery.*

An exceptionally busy period at Pulborough, with the Portsmouth train heading south onto the bridge over the River Arun, as the London-bound train pulls in. The branch train in the loop, one of the early single-coach push-pull units, is due to head south once the Portsmouth train is clear, whilst the engine from the cattle train is being turned while cattle are being loaded through the pens. One of the very last surviving Stroudley goods brakes with birdcage roof is just visible in the distance behind the push-pull.

following day he came back – this time with his father in tow, who must have been about 80 or 90, and who had been brought out of his retirement home especially to see the layout. He was able to recall all sorts of interesting details, and I think got a lot of pleasure from seeing our model.

At the same show we had a young couple who asked if the model was completely accurate. They were told yes, it's as accurate as we can reasonably be. They then announced that they lived in one of the railway cottages not yet completed!

That's perhaps not quite as embarrassing as the two elderly gentlemen discussing our other layout, 'West Chiltington'. One was telling the other how it was

The station building seems to be dominated by its majestic chimneys – fourteen pots in all. The railway very obligingly provided a covered walkway from the subway up to the island platform, but passengers were unnervingly close to the down loop starter, which was set very low to give drivers good visibility. The up and down main platforms were originally built about 18in lower than the later standard, and evidence of subsequent modifications can be seen.

One of the last surviving Stroudley singles heading away towards the coast.

Corralls coal yard with carts being loaded for delivery to surrounding villages. The figure behind the buffer stops represents the famous Lewes photographer, E. J. Bedford, setting up his equipment, perhaps waiting for the Royal train en route for Portsmouth.

The narrow bridge over the Petworth/Storrington road still exists, although much altered.

Traditional back gardens of the cottages showing signs of care and attention from keen gardeners.

exactly as he remembered, and how he used to lean on that bit of fence over there watching the trains go by, and what wonderful memories it brought back. Unfortunately, one of our operators was, at the same time, in a fairly loud voice, telling another viewer that the layout was completely fictitious and that West Chiltington never in fact had a station.

But back to 'Pulborough'. Since last photographed for MRJ, we have achieved quite a lot. The most noticeable addition is the extension southwards to include the River Arun and its very substantial bridge, not to mention a model of the last surviving Arun barge — a unique vessel especially suited to local conditions. Other scenic additions include the completion of the market place, the cattle pens and the ploughed field above the cutting. All relatively minor but adding detail to retain viewers' interest in the intervals between trains.

The biggest change has been the completion of the signals. All are now fully operational, including all the ground discs. Perhaps surprisingly, the biggest impact of this has been to make the layout so much easier to operate.

Having now more or less run out of ideas for further developments on 'Pulborough', we've just recently started work on our new layout, a fictional inner-London location. We have a clearer idea of the commitment required and a much wider range of knowledge and skill to call on. Watch this space!

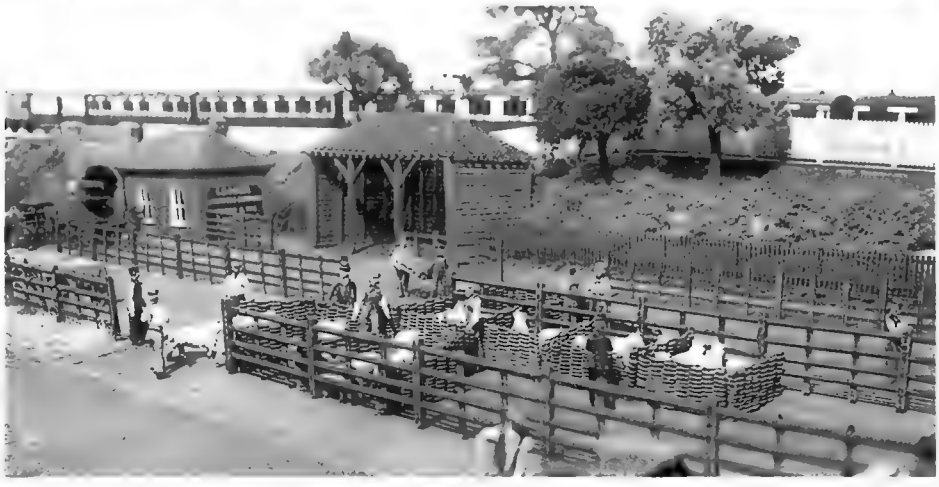
It can be fairly frustrating building a layout like 'Pulborough' which is too big to erect and operate anywhere except at shows. As described previously, it gave us considerable problems in building the layout in a domestic garage where we couldn't put up more than three of the baseboards at a time. Learning to operate the layout has been immensely difficult — trying to operate in a reasonably prototypical fashion requires a lot of practice and a huge amount of concentration, a bit like a non-competitive game of chess. However, it's this complexity which has enabled us to retain our interest over the duration of two or three day shows.

We've been fortunate in having been invited to a wide range of shows across the country, all of which have been enjoyable in one way or another. Wales and the West is one area that we have yet to visit.

A view northwards, taken from the down advanced starter, on the south side of the River Arun.

We've also had the opportunity to take 'Pulborough' to the continent – Argentan in 1993, and Utrecht in 1994. Argentan was a very small show, and I think there were probably more exhibitors than visitors, but the hospitality was brilliant. We were taken out for a meal on the Saturday night to a local restaurant. We sat down at about 8 o'clock to eat, and finally left at about 1.00 a.m., after an eight-course meal, several bottles of wine, some traditional French music and a fairly confusing conversation in Franglais about the merits of scale modelling.

Utrecht, by contrast, is an enormous show – 30,000 visitors in three days. Again the hospitality was tremendous, but not quite on the intimate scale of Argentan. It was interesting to see how very different British modelling is from the continental style. The most common question to us was: 'Why do you only build the station – what about the rest of the railway?' The concept of fiddle yards and traversers was very novel to them. We also had difficulty in explaining why so much of the layout had to be scratchbuilt, a fairly unusual aspect of mainstream European modelling. On the other hand, we were surprised by the degree of knowledge about P4 standards and indeed the number of Scalefour modellers in Holland. For next year we have a tentative



Pulborough boasted an extensive market, and these scenes portray livestock arriving for the day's sales. The main fencing was permanently fixed and used for tethering cattle and horses, but the hurdles to make up the sheep pens had to be set up each market day. The open barn was severely damaged by a storm and is awaiting re-tiling.

invitation to Orleans. Build a model railway – see the world!

One of my favourite moments occurred at the Blackburn show a few years back. At one end of the layout an elderly man, 90 years old apparently, was telling us that yes, the turntable was about the right speed – that was as fast as he used to be able to turn an engine after a full day's firing. At the other end a young lad came to the layout, stood on tiptoe to get a better view and said to his dad (imagine a broad Lancashire accent) "Eeee – it's awesome!" It makes eleven years work seem somehow worthwhile.

This layout can be seen at the following exhibitions in 1996:

Brighton Modelworld Exhibition, Brighton Centre (seafront), Sussex, from 16th-18th February;

Scalefour North, Horbury School, near Wakefield, West Yorkshire on 23rd and 24th March;

Scaleforum – September (see MRJ for details in due course)

Ipswich – November (see Diary for details in due course)

This model portrays the last surviving Arun barge with its owner, Harry Doick, at the helm. Slipping silently downstream on the ebbing tide, it would have taken a day or so to reach Littlehampton from Pulborough, whereas the goods train coasting southwards over the bridge would have taken about an hour.

This picture shows No. 64 in the sunshine a few moments later, on the other side of the bridge.

'Terrier' No. 678 (formerly Knowle*) struggling up the incline with its motor trailer in tow. This engine was originally laid aside in 1907, but was subsequently rescued and converted for motor train use. It later survived a spell outside Butlins at Minehead, was rescued a second time, and is now being restored on the Kent & East Sussex Railway.*

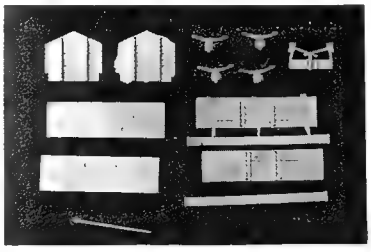
DUMB-BUFFERED PO LIME WAGON

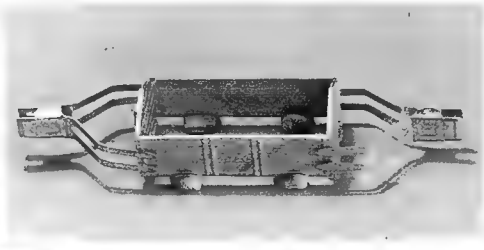
Woodham Wagon Works is a prime example of the cottage industries which keep our hobby moving forward *(writes Barry Luck).* Eric Gates manufactures a relatively small range of 4mm coach and wagon kits selecting from prototypes which no other maker would touch because of the fairly limited sales likely to be generated. He is disarmingly honest when he says his kits 'fall some way short of MRJ's definition' because they are not necessarily complete nor straightforward to build.

This particular kit of a dumb-buffered PO lime wagon is a typical example. WWW supply ends, sides, solebars, roof, axle guards, springs, brake gear, and 'real working dumb buffers'! The kit contains no floor, wheels, bearings, W-irons, or lettering. The castings have some flash around the edges and feeds, but this can be removed within a few minutes, leaving a series of excellent clean, crisply-cast components. Assembly is straightforward, although not easy as there are no location pips or tags anywhere. This makes it quite difficult to make sure the wagon is put together square – but nothing that a little ingenuity can't solve. I had a few problems in making a reasonable job of the corners, since they are a butt fit rather than mitred, and this leaves a rather obtrusive joint in the corner plate on the end of the wagon. I also found that the brake gear didn't fit very well, and required a bit of fettling to obtain the necessary clearances. Neither of these problems could be regarded as terminal.

The drawing from which the kit was made is credited to the Lancaster Wagon Co., believed to be for Robins & Co. of Northfleet. Nothing is known of Robins' livery, but a suggested layout for the Dorking Lime Co. is given. Overall, the instructions provided are complete and well thought out. In conclusion, then, a 'collection of castings' (as described in the instructions) capable of being turned into a nice model.

Woodham Wagon Works is currently closed for a house move but is due to re-open for business in 1996. The range is small, leaning strongly towards early stock and the LBSCR. No list is published. Enquiries (with two first class stamps) to WWW at Freelands, School Lane, Barrow Gurney, Bristol, BS19 3KZ.





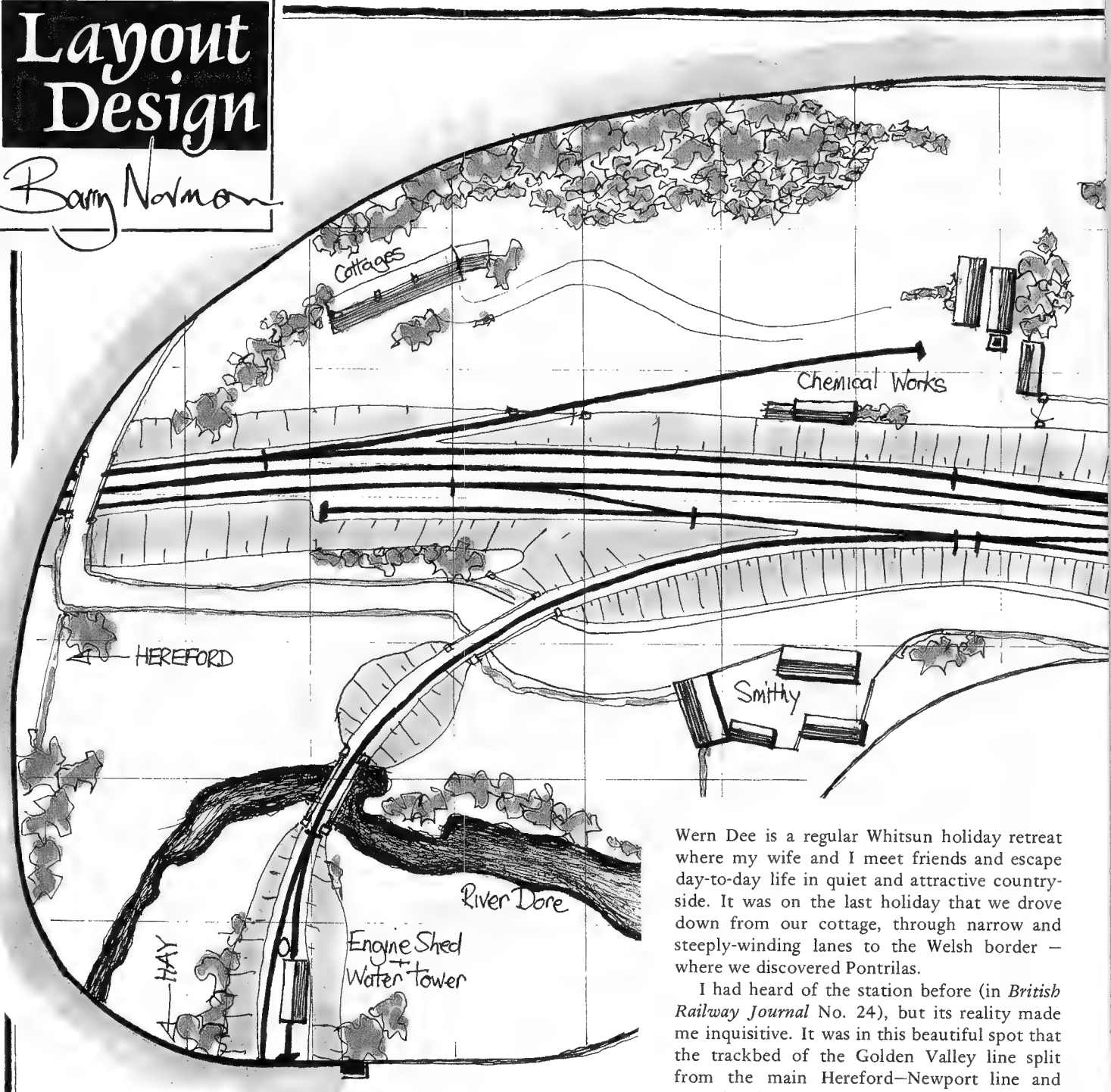
Top left: *Woodham's 'collection of castings'.*

Top right: *Ingenuity: Blu-tak and bent hair grips hold the parts together during assembly.*

Right: *The finished wagon.*

Layout Design

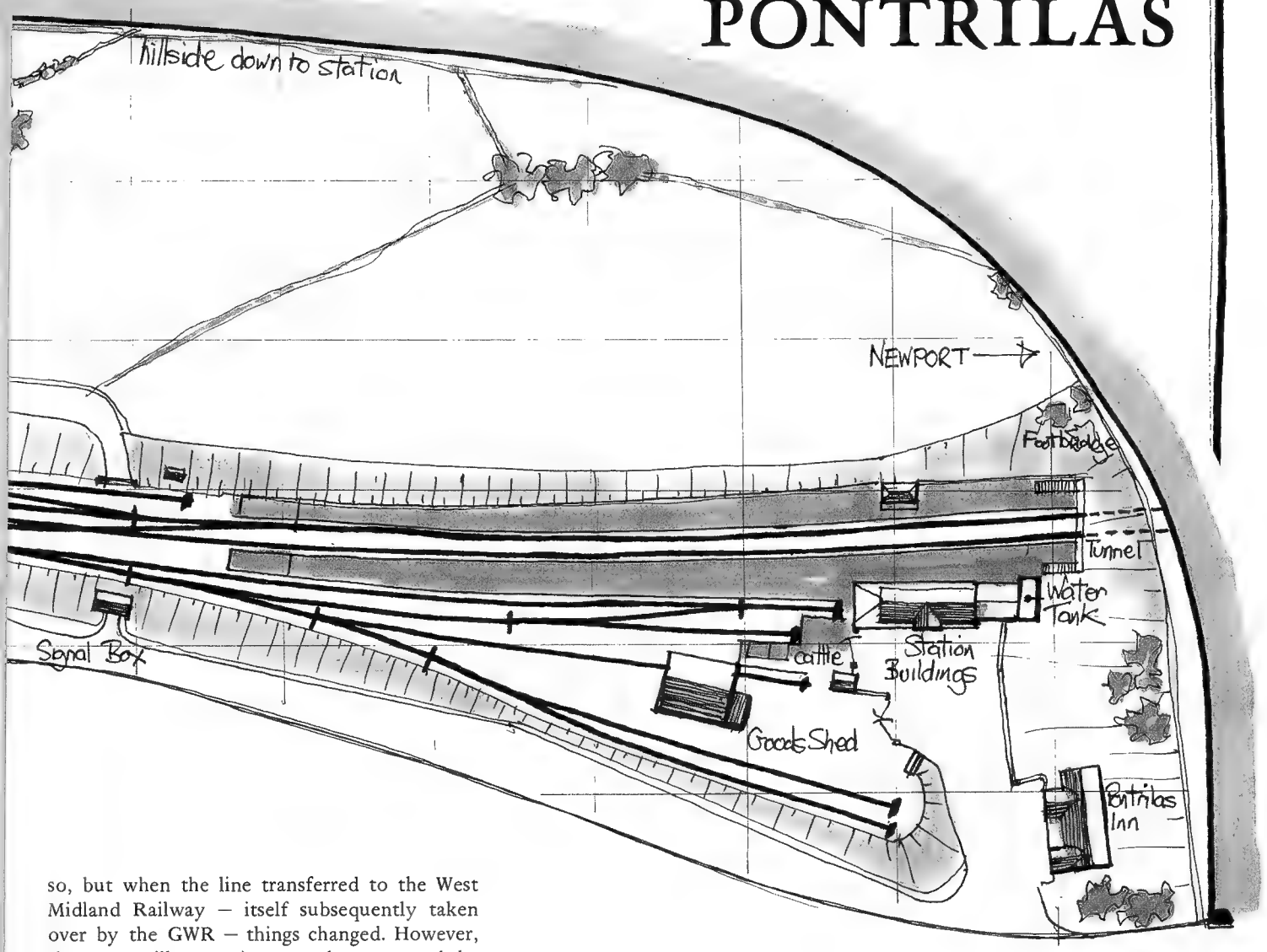
Barry Norman



Wern Dee is a regular Whitsun holiday retreat where my wife and I meet friends and escape day-to-day life in quiet and attractive countryside. It was on the last holiday that we drove down from our cottage, through narrow and steeply-winding lanes to the Welsh border – where we discovered Pontrilas.

I had heard of the station before (in *British Railway Journal* No. 24), but its reality made me inquisitive. It was in this beautiful spot that the trackbed of the Golden Valley line split from the main Hereford–Newport line and meandered towards Hay-on-Wye. The history of the junction is complex. It seems that the main line was driven south to gain access to the South Wales coalfields – coal was certainly needed up at Birkenhead to fire the ocean-going ships serving our industrial heartlands. In turn, iron ore was sent south. The Newport, Abergavenny & Hereford Railway approached the LNWR to operate the line and indeed did

PONTRILAS

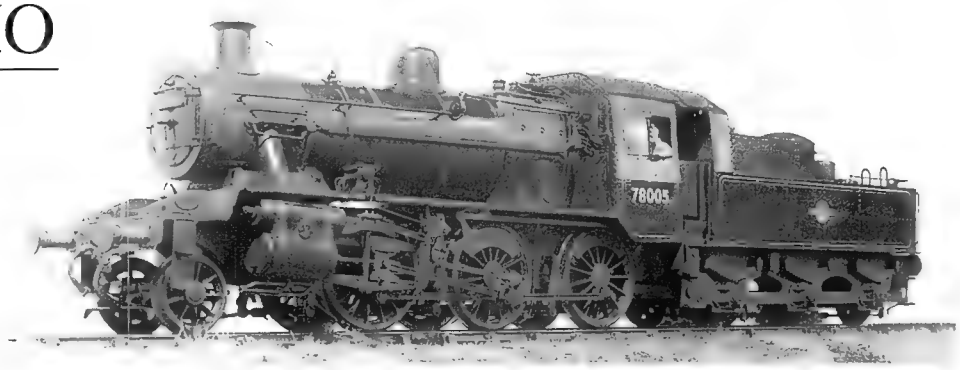


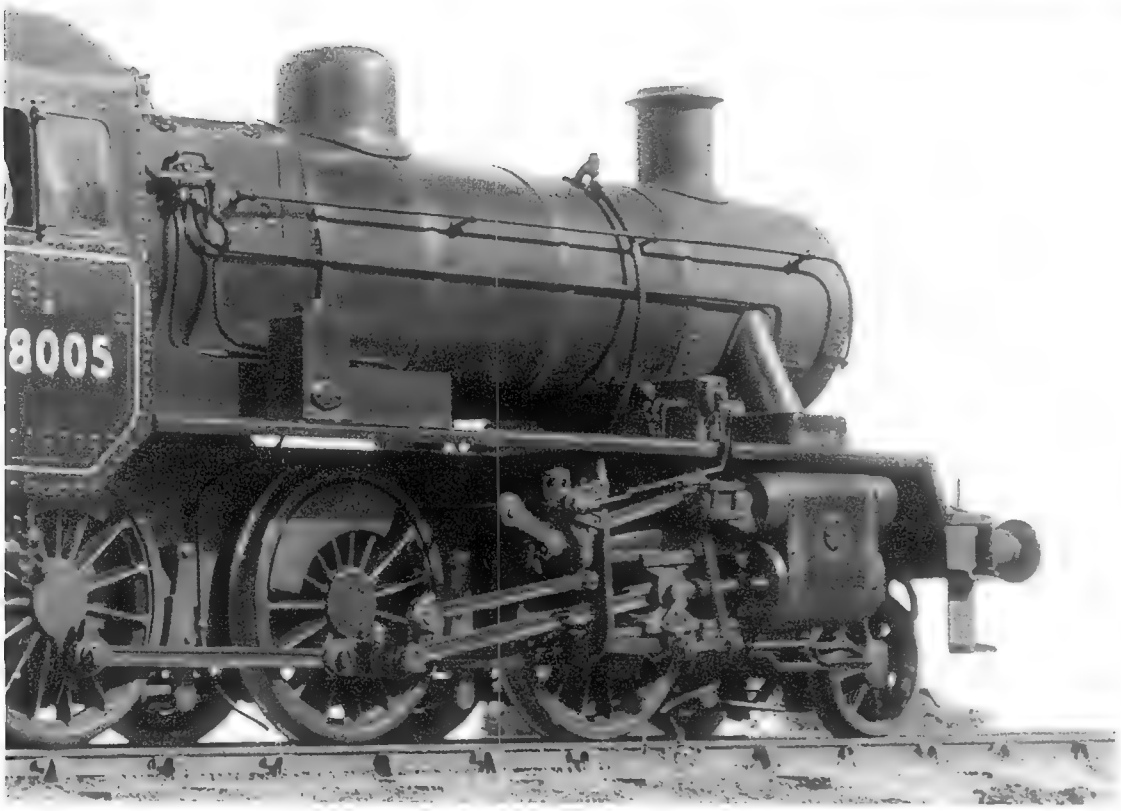
so, but when the line transferred to the West Midland Railway – itself subsequently taken over by the GWR – things changed. However, the LNW still ran trains over the route and the partnership continued until the 1950s. So, an interesting place – GW trains mixed in with the occasional North Western and later LMS operations. A modeller's dream indeed!

The branch line arrived later as the independent Golden Valley Railway (which had some mighty interesting rolling stock) but it soon got sold to the Great Western. An unusual feature of the station was the isolated engine shed situated a short distance down the line, a corrugated iron structure with a circular water tower parked by the far side of the river bridge and road crossing. This was home to a '517' 0–4–2T and, later, a Collett tank. This branch line gave Pontrilas all the operational trimmings of a junction, although this was not the sole focus of shunting. The refuge siding meant goods trains were often stopped here and reversed out of the way to allow higher priority trains to pass. This would provide interest to viewers at an exhibition. There was even a chemical works on the far side of the main line – an odd and rather dilapidated sort of place which would add movement and interest to the model.

I think this would make a very nice layout, it has so much to offer. The double-track line whisked its GW trains into a tunnel towards Newport, while the single track wove its way westward. The station was the stage upon which all this country junction activity was performed.

MRJ PORTFOLIO



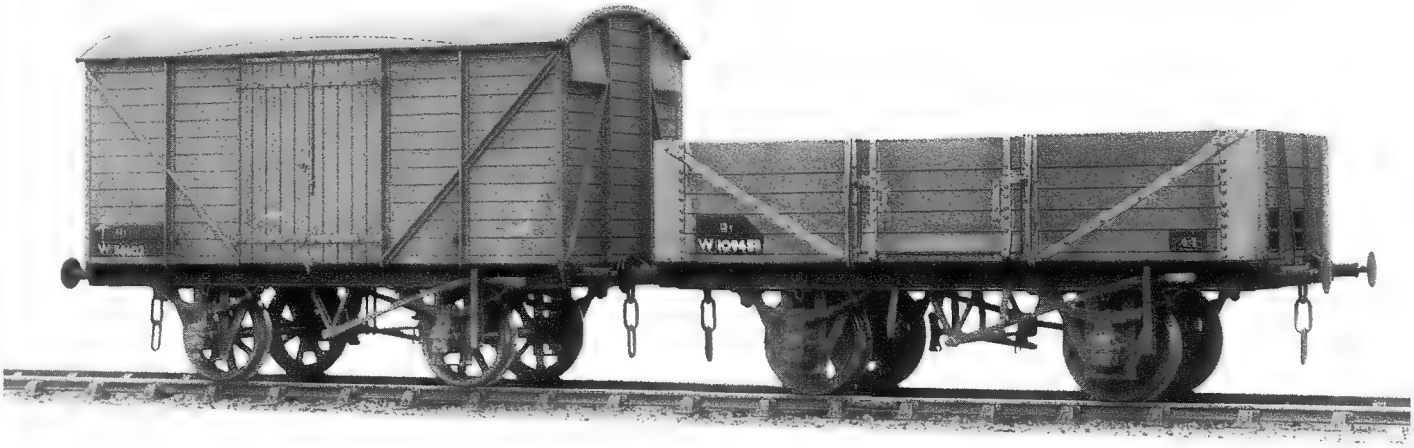


This 7mm BR Standard Class 2 locomotive was constructed from the DJH kit by John Constantine who commented that for the most part, it was relatively straightforward to assemble, although he felt it to be somewhat of a compromise, being an enlarged version of the 4mm kit. In the smaller scale, the cylinders are designed (according to DJH) to protrude further out from the frames in order that the front pony truck will negotiate sharper curves, and John found it necessary to mill up to 3.5mm from the rear of the cylinders in an attempt to align them vertically with the footplate. Similar modifications to the 'J' hangers ensured that the valve gear and rods would operate freely, and the clearances behind the slide bars are now a little tight to say the least, but the improvement visually is well worth the effort. After fitting some extra details, the locomotive was sent to Martyn Welch for painting.

John's customer asked Martyn to finish the locomotive in BR mixed traffic livery in reasonably clean condition, using some photographs of assorted examples supplied by him as a guide. Martyn used a base coat of grey primer, then sprayed the loco with satin black cellulose before lining in enamels using Bob Moore's lining pen. Numerals and crests came from the Fox range of waterslide transfers which impressed him as they have no carrier film surrounding each transfer. The bodywork was carefully airbrushed with several delicate coatings of gloss cellulose varnish until he was certain the transfers were no longer in danger of bubbling, and followed these with denser layers until a high sheen was attained.

The tender was coaled and, after painting, the cab interior was flush glazed before attaching the various makers' plates to the bodywork with tiny spots of varnish. Afterwards, the loco was weathered employing the various techniques described in Martyn's book.

Unfitted Freight in 7mm



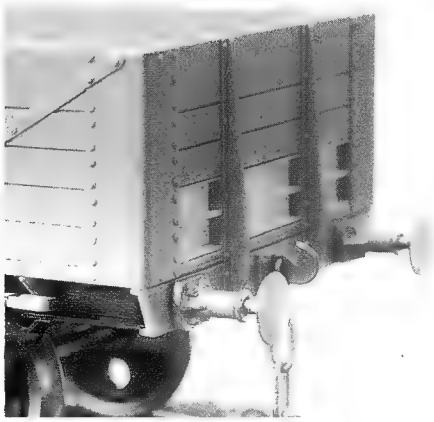
GERRY BEALE improves two more excellent kits from the Parkside stable:

The much anticipated Parkside Dundas 7mm kit for the GWR Diagram O24 open goods wagon arrived in the shops just before Christmas 1994. Ever since Parkside announced their intention of producing GWR prototypes there has been an unprecedented buzz of anticipation, and I am pleased to say that the wait has been worthwhile.

Newly-produced mouldings for the wagon body are fully up to Parkside's standard, and are crisply detailed both outside and within the vehicle, the angled bottom plank of each side door being particularly well modelled. The underframe and running gear uses the mouldings for the standard RCH pattern 9ft wheelbase chassis, with handbrakes only, which have been used by Parkside Dundas for several years in their previously-released LMS and SR wagon kits. As before, it is in the area of the underframe where some improvements might be made but, in view of what I said in my earlier article (MRJ No. 77), for the purpose of this model I determined to use as much of the supplied moulding as possible.

I intended to model the wagon as it might have appeared in BR ownership in the early 1950s. A photograph of W119949, found on page 21 of *Pre-Nationalisation Freight Wagons on British Railways* by David Larkin (Bradford Barton), was the general pattern for my model. The photo revealed a number of variations from the kit: the bottom two planks in the end of the vehicle had been replaced with steel channel – a common BR modification to wooden-bodied wagons, intended to overcome the damage to ends caused by loads moving under shunting shocks; also, the body planking had been altered with the original overwidth top plank replaced by a standard width plank and an additional half-width plank.

I decided to rectify the first variation on the grounds that it would be a simple and interesting modification – and to ignore the second as it would be very difficult! Geoff Kent, in his splendid book *The 4mm Wagon*, describes a simple method of replicating the replacement end planks, which I followed (page 21). Cutting away the two planks between the corner plates and the end stanchions involved drilling a number of holes, roughly filing away the unwanted material and finishing off with a fine needle file. The new channels were cut from 10 and 15-thou Plastikard cemented with Mek-pak. This is all quite straightforward work, although it should be done as crisply and as tidily as possible so that the added-on detail matches the quality of the mouldings. The photograph of the unpainted model shown here should reveal the additional work to the body components.



Assembly of the body came next – the floor, two sides and the two modified ends, taking care to get everything square. Particular care should be taken with the mitring of the corners and once the body has set, preferably overnight, the corners should be carefully dressed round with a fine-cut flat file. The corner plates on mine were finished off using fine 800 grit emery paper, glued to a flat lolly stick, to remove any trace of a join and to show it as the single item it is in reality. A final touch was the addition of capping strips to the sides and ends. Appropriately sized Slater's microstrip was used for this and there should also (for a BR era wagon) be a representation of the retaining clips, ideally produced by punching them from copper shim as outlined by Guy Williams in his Wild Swan book *The 4mm Engine*. As well as shaping the clip, this method enables the raised bolt-head detail to be included but, until I am able to make a punch for myself, such niceties will have to wait. Capping strips do not appear to have been fitted to the drop side doors and were accordingly left off.

On the model, buffing and drawgear is integral to the moulded end. The buffers supplied by Parkside Dundas are, though nice, a four-rib pattern first supplied with the manufacturer's kit for the BR Grampus engineers' wagon; as well as being a bit clumsy, they are the wrong pattern for this GWR wagon, so I instead

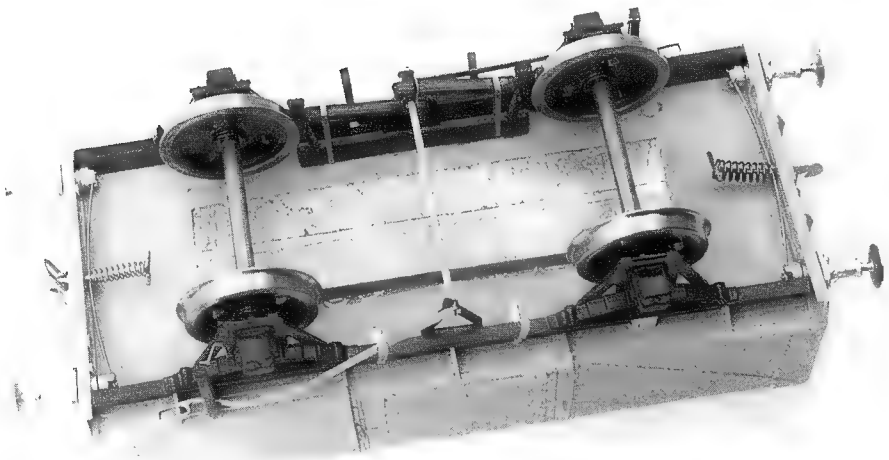
used ABS Models' RCH sprung 18-inch 2-rib buffers (part No. 0.UO2) and 'scale' turned buffer heads. The cast whitemetal buffer stocks need to be drilled out before they are glued into enlarged holes in the headstocks, whilst the turned buffer heads are soldered into short lengths of fine brass tube. From these it is possible to produce a correct pattern buffer, of scale appearance, that can be properly sprung if required.

In my previous article – 'Fitted Freight in 7mm' – I mentioned that it is now common practice to spring buffing and drawgear in 7mm scale but gave few details of how this might be achieved. To help in this instance, a photograph of the inverted model shows the arrangement I generally use. Slater's etched brass coupling hooks are substituted as they have a more scale appearance than those provided by Parkside Dundas. Before fitting, a slot, about 5 or 6mm in length, is cut in the drawhook, just wide enough to allow the length of piano wire which provides springing for the buffers to pass through the drawhook. The drawhook itself and the piano wire are retained in position by the coil spring supplied, the slot allowing the drawhook to move forward through the headstock under load. The result of this minimal extra effort is a wagon that behaves rather more like the real thing. If all one's wagon stock is sprung in this way, and the vehicles properly weighted, it is possible to recapture something of the movement and action of the traditional British unfitted goods train – with wagons crashing backwards and forwards on their buffer springs as trains stop and start.

I used the Parkside Dundas method of compensating the wheelsets, and assembly of the main underframe and running gear components followed the instructions. Axleboxes were carefully cleaned up and mould joint lines removed but otherwise were as supplied. I substituted three-hole disc wheelsets for the spoked wheels provided simply because the photograph of my chosen prototype showed them. It is in the area of the brakegear that a little extra work will be amply repaid. The main moulding was modified around the brakeblocks as shown in the sketch and the few minutes work resulted in blocks of more accurate outline and much less heavy in appearance. I could not live with the over-heavy moulded brake safety loops so I substituted my own, formed from thin nickel-silver strip – once sold as 4mm scale boiler band strip I believe! An additional safety loop was formed from thin brass wire and fixed to the brake cross-shaft about the V-hanger.

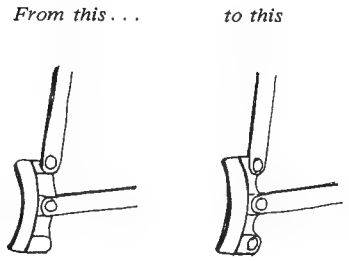
I was not happy with the moulded brake lever and, in the absence of a 7mm scale equivalent of Masokits components, had to cast around for an alternative. I found it at the premises of The Wagon and Coach Works at Sawbridgeworth, Herts. They retail a pack of etched brass brake levers and racks (part No. EB100) and I used the brake levers only. These were formed to shape – on the prototype wagon they bend outwards to miss the axlebox when the lever is dropped to apply the brakes – using the plastic items as a pattern. When it came to folding up the handle end of the lever to form a loop, I found it helpful to make nicks to assist in making the right-angle bends, using a sharp-edged needle file. The result was nice, sharp-edged corners which then had soft solder run into them to reinforce them.

Due to the etched lever guides being of the wrong pattern, I had to use the Parkside Dundas components. I reduced them by judiciously filing away as much as possible, but I fear they are still a little heavy in appearance. However, in the absence of a suitable alternative, they will have to suffice. Although the prototype wagons were built largely to RCH specifications using standard components, the GWR – in a typical example of Swindon nonconformity – retained the use of its own pattern of brake lever guard. This fitting had a sawtooth rack for holding the brake lever in the 'on' position rather than the lever guard having a series of holes and a retaining pin as used by the other companies. A final touch was the

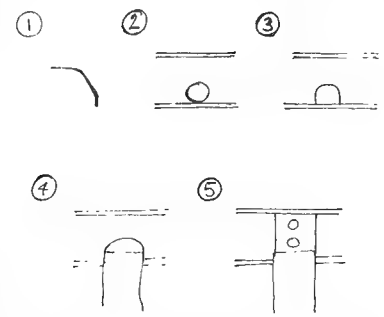


This view of the inverted wagon shows the method of springing the buffing and drawgear. It also shows, incidentally, that I used lengths of old printers' letterpress spacing slugs to bring the model up to an optimum weight without obscuring the interior detail.

IMPROVING THE APPEARANCE OF RCH BRAKE SHOE



(1) Drill hole at bottom of brake shoe
(2) & (3) Using fine round needle file cut back moulding to shape shown.



ADDING NEW NICKEL SILVER DOOR 'BANGERS' (sketches not to scale)

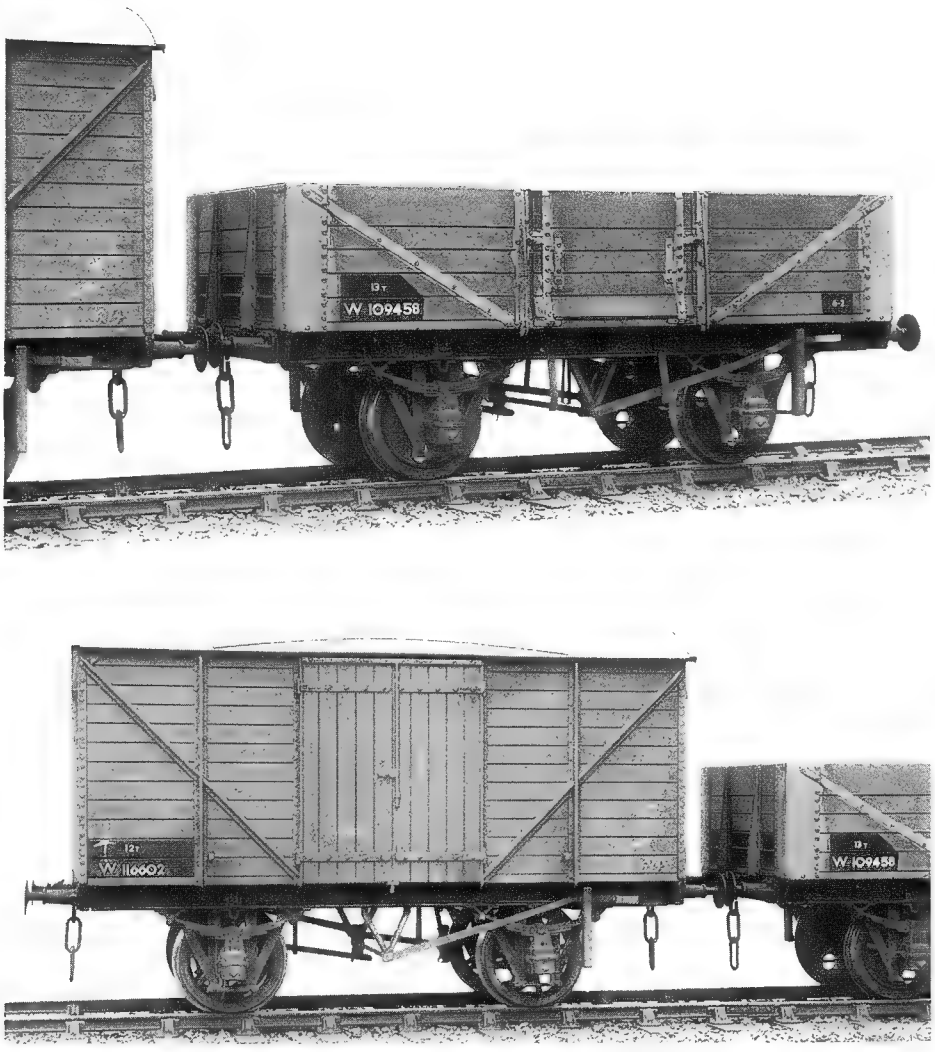
1. *Side view of replacement nickel silver door 'banger' formed to shape but omitting upright section. 4 off.*
2. *Hole, equal in size to the width of the nickel silver strip, drilled in solebar in correct position for door 'banger'.*
3. *Hole squared off down to lower flange of solebar channel using fine, square needle file.*
4. *New nickel silver strip door 'banger' glued into position with Superglue.*
5. *Upright section of door 'banger' added using Microstrip, which also obscures remaining portion of hole. Bolt-head detail is added from tubes of Microstrip floated into place with Mek-pak.*

support strap – from the brake lever guard to the axleguard – formed from more of the 4mm scale boiler band strip, glued into place with superglue.

As supplied, the side door springs, sometimes known as bangers, are plastic and therefore a little clumsy. More delicate and stronger replacements were formed from appropriately-sized nickel-silver strip, and my method of attaching these notoriously vulnerable items may be of interest. Four replacement parts were formed to the correct shape but made overlength where they sit on the lower flange of the solebar channel, and the vertical section – where on the full-size wagon they are bolted to the solebar – is omitted. A hole, equal in diameter to the width of the nickel-silver strip, is drilled through the solebar in the position where the door banger is to be located and is then squared off down to the lower flange of the solebar channel using a fine, square needle file. The replacement banger is glued in place using superglue with the overlength section passing through the hole in the solebar. Finally, the upright section of the door banger is added using microstrip equal in width to the nickel-silver strip. As well as the cosmetic function of representing the upright section of the door banger – and obscuring the remainder of the hole – it also has the effect of locking the nickel-silver strip in position. Bolt head detail was added using cubes of microstrip floated into place with Mek-pak.

The last addition to the underframe was the label clip mounted on its block of wood. This feature is easily modelled using a block cut from appropriately-sized Plastikard and the clip itself formed from 5-amp fusewire and superglued in place (not forgetting that on the prototype the clip is angled outwards at the top so that labels can be easily and quickly changed).

No further additions were made to the underframe and the other features, such as horse hooks and numberplates, were left as supplied by the manufacturers. All the above-mentioned alterations and additions can be done in minutes and take much longer to write about than to actually undertake. They are, however, additions worth making as they elevate the finished model to a higher standard, in my view.



These two views of the finished wagons show to advantage the replacement brake handles and door 'bangers'.

COVERED GOODS (V33)

With construction work on the open wagon completed, I was just contemplating painting it when the kit for the GWR 12-ton covered goods wagon (to Diagram V33) appeared in the shops. I rapidly obtained one and the contents of the box were eagerly examined. As expected, the underframe is identical to the open wagon whilst the body components are to the high standard now expected from this manufacturer. Finding a prototype example on which to base my model was simplicity itself as MRJ's sister publication, the *Great Western Railway Journal*, has been running a series of articles entitled 'Modern Minks', which contains a number of useful photographs. I chose to base my model on the view of W116718 (on page 394 of the winter 1994 issue). A further photograph of a V33 van in BR ownership was published in the spring 1995 issue (page 584) and may be used as an alternative.

As with the open wagon, construction largely followed the manufacturer's instructions. Buffers were replaced with ABS items whilst the brakegear was altered and the brake levers and safety loops replaced as already described. Assembly of the body components was quite straightforward, although it may be noticeable in the photographs that while I have added the separate door catches, as described in the instruction sheet, they are fitted upside-down! I only noticed my error after the model had been painted and by then it was too late to do anything about it.

Apart from the alterations and additions to the underframe, the only other area which received attention was the roof. So far as I can see, the roofs of all GWR covered goods vans are finished with an angle which, presumably, protects the end grain of the roof planks and retains the canvas covering in place. I did not feel that this feature was adequately modelled and it is the work of minutes to rectify it. Firstly, all the detail is removed from the roof using a large, flat, fine-cut file and finished off with fine emery paper. Narrow strips to form the upright section of the roof angle were cut by scribing parallel arcs in 10-thou

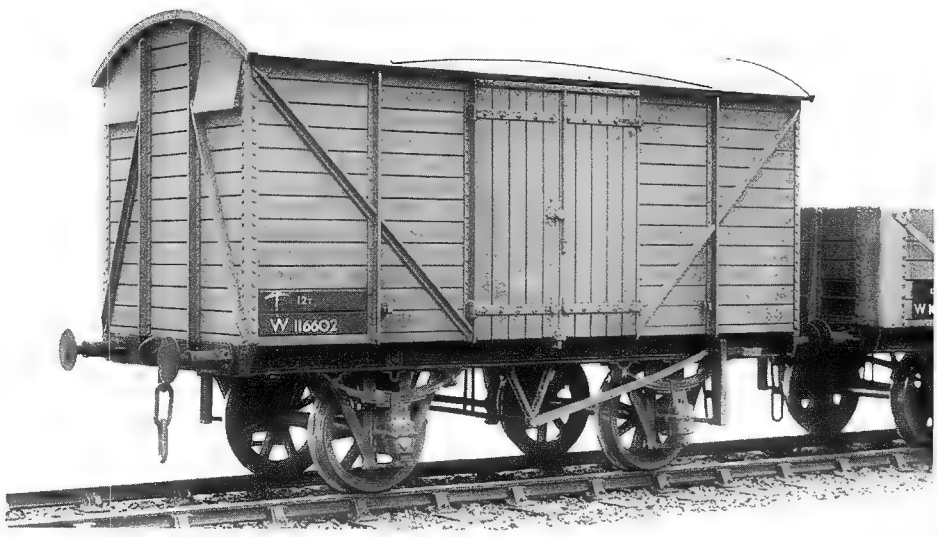
Plastikard, using the roof as a pattern, and carefully cutting them out using a scalpel. Cut them overlength and cement them to the end of the roof with Mek-pak. The horizontal section of the angle is applied using microstrip of appropriate width, fixed to the roof and overlapping the uprights. When all has set (several hours later) the joint between the two components is removed by gently rubbing the roof end-on onto a piece of fine emery paper laid flat on the work surface. The newly-formed angle is cut back to the correct length to give the characteristic appearance of a GWR covered van and, as a final touch, new rain strips are added from microstrip and cemented into position over the doors, using the prototype photograph as a guide.

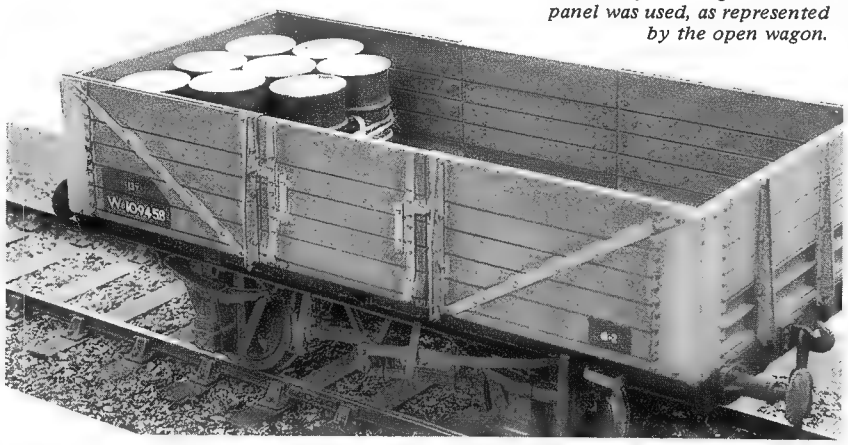
With construction work on the wagons completed, they were painted as a pair as, of course, they both carry the same livery. After a wash in soapy water to remove greasy fingermarks, both were airbrushed in Railmatch BR early freight stock grey. My initial impression once the paint had dried was that the colour was too dark. I continued, but this impression was confirmed when the wagons were shown off in public for the first time. Black underframes were brush-painted using a mixture of Humbrol matt black and matt earth and the patches for lettering were painted onto the bodyside using the same mixture. When the paint was dry, the lettering was applied using the transfers supplied by Parkside Dundas. Once the lettering had set, and any surplus adhesive washed away, a coat of Humbrol matt acrylic varnish was applied by airbrush.

Of course this pristine paint finish had to be weathered down, and the principles described by Martyn Welch in *The Art of Weathering* were followed. With the open wagon, after the weathering had been applied, I roughly brush-painted the ironwork to represent a wagon that had been repaired and quickly patch-painted. Examples of wagons looking like this are commonly seen in period photographs and may often be visible in the wealth of BR-era coloured views published in recent years. Dry-brushing with rust-coloured paint to pick up the bolt-head and other detail was the final touch. Shunter's chalk marks were added to the sides and ends of the covered van using a sharpened Chinagraph pencil.

I like to provide a load for open wagons wherever possible and in this instance I used some 40-gallon oil drums cast in resin from Duncan Models of Salisbury. These were painted bright red with yellow ends using Humbrol enamels. I have no idea what the colours indicate but presumably they were coded for contents – I simply followed 1950s coloured photographs (*Steam World* magazine has been a good source of these in recent years). After lightly weathering, the drums were glued to the floor of the wagon. A retaining rope was added using fine cord sold by Maritime Models of Greenwich and designed for model ship rigging. Even this needed weathering with a thinned mixture of matt earth and matt black, and when dry, was wrapped tightly round the drums and tied. I always try to follow a prototype example so that roping, for instance, is correctly done. *Steam Railway* again provided the reference (the frontispiece of the December 1991 issue showing a goods train at Lancaster, if you must check up on me!).

The results of this work are two ex-GWR wagons in the early BR period which are a little closer in appearance to the real thing. No doubt some modellers will consider the extra effort is not worth it and will build the kits straight out of the box. If so, they'll still end up fine models – probably Parkside's best yet in 7mm scale – and I look forward to the forthcoming range of GWR 10ft wheelbase open wagons and covered vans with the greatest anticipation. If they are manufactured to the same high standard as these two kits, they will be quite a treat for those working in the senior scale.





Two further views of the completed wagons. The use of GWR style 'script' lettering for the tare weight of the van was a feature of the early BR period. Later, sans-serif lettering on a black panel was used, as represented by the open wagon.

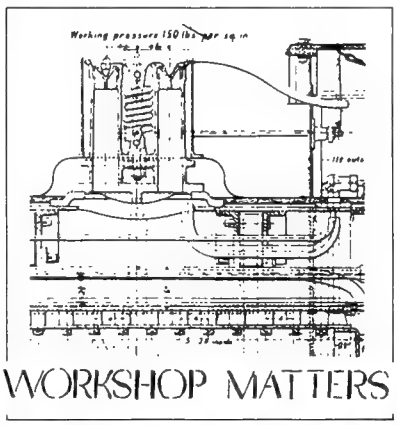
The Parkside Dundas GWR 13-ton open goods wagon (Diagram O24), catalogue number P523, is available from model shops at £19.95; GWR 12-ton covered goods wagon (Diagram V33) likewise costs £19.95. Parkside Dundas is at Millie Street, Kirkcaldy, Fife, Scotland, KY1 2NL – tel: 01592 640896.

Other suppliers mentioned are:
The Wagon & Carriage Works, Unit F1, The Maltings, Station Road, Sawbridgeworth, Herts, CM21 9JX – tel: 01279 725427.
ABS Models, 39 Napier Road, Hamworthy, Poole, Dorset, BH15 4LX.
Duncan Models, 34 Waters Road, Salisbury, Wilts, SP1 3NX – tel: 01722 321041.

Cleaning Up

Techniques for getting rid of muck when kit-building, from LAURIE GRIFFIN:

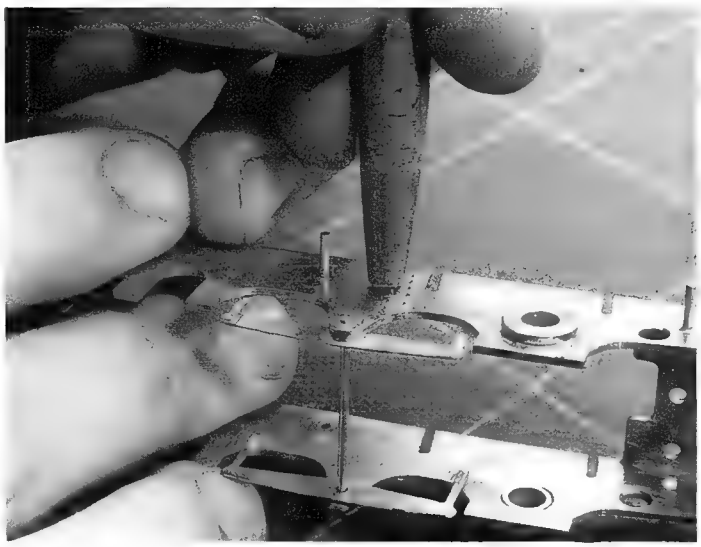
Whenever building a model from metal, it pays to clean away flux and dirt as you progress. I generally finish each modelling session with a quick wash-down with kitchen cleaner (the Mr. Muscle brand works well) and water, washed over the model with a cheap 12mm decorator's paintbrush. When construction is complete – either of the whole model or the individual sub-assemblies – the quality of your painting, general appearance and indeed the longer-term survival of your model, will be enhanced if all bits of flux, solder overspill and general crud are properly removed.

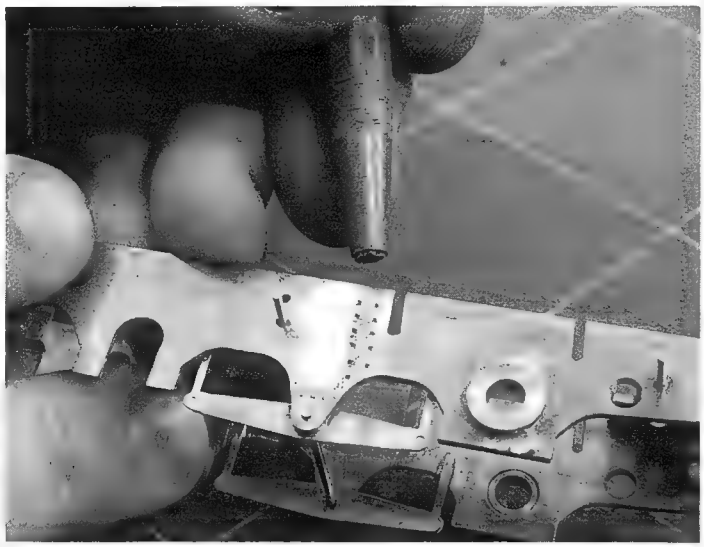


WORKSHOP MATTERS

From left to right are some tools and pieces of equipment you will find useful. They are a brass wire brush, triangular scraper, rubber abrasive polishing wheels, glass fibre pen, a scraper made from a broken needle file, engraving tools and, across the top, Garriflex abrasive blocks.

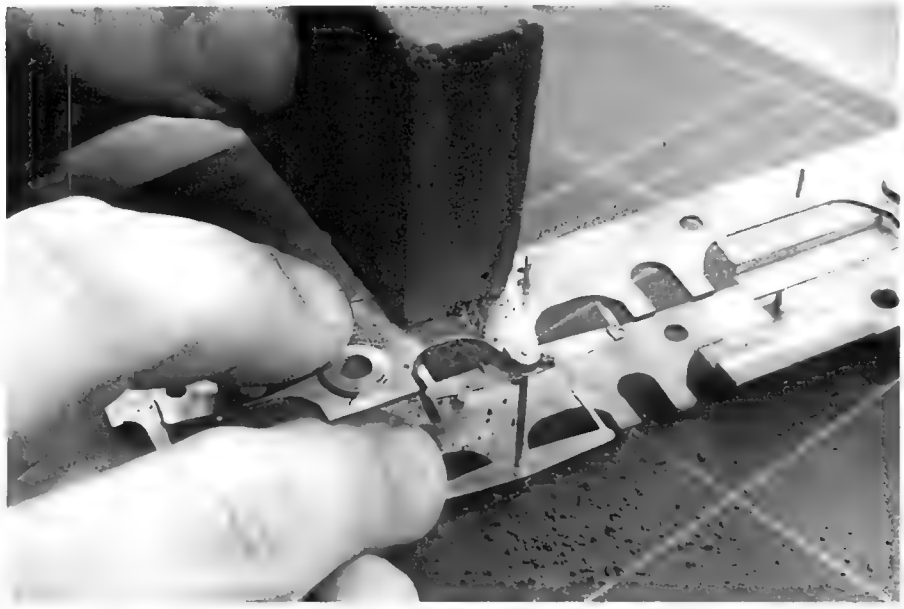
Firstly the brass wire brush, shown here in use on an etched chassis. I didn't think a photo too useful with this – however, it's pretty obvious how you use a brush! However, it does show how to use it without removing skin as well as muck! I use this for any large areas needing polishing, such as 7mm scale tender sides and boilers, whitemetal fittings such as chimneys and domes, and those areas where there is generally not much fine detail to get knocked off.

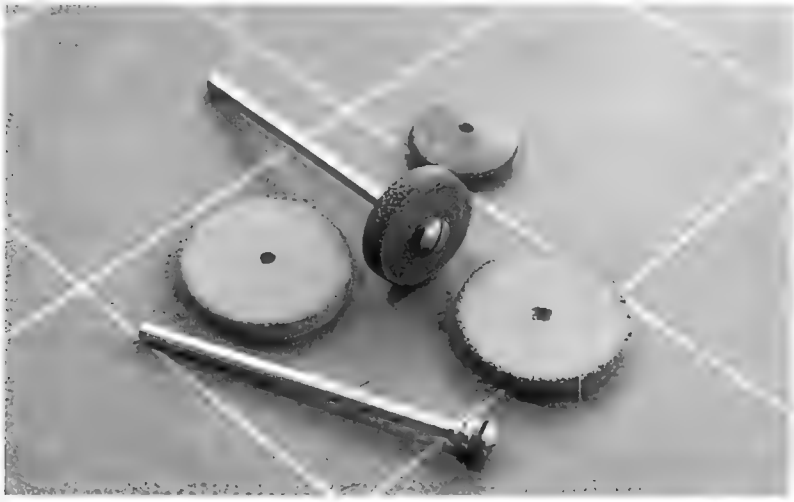


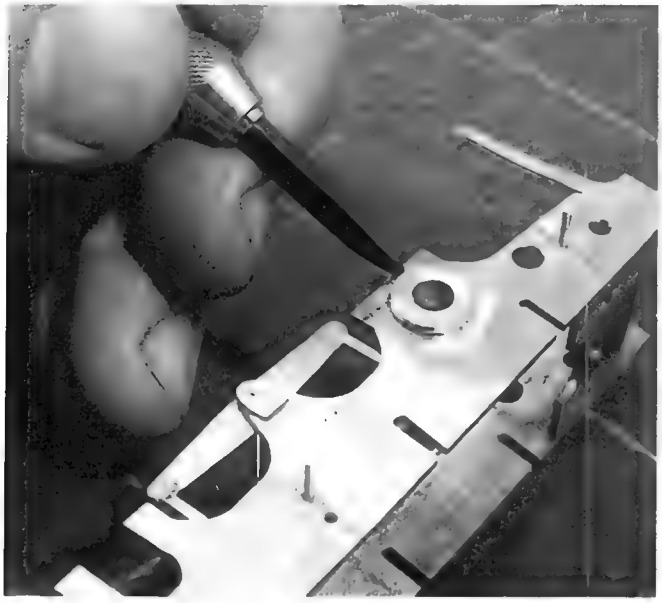


Once the big areas are cleaned with the brush, it is down to work on the small details and corners. The glassfibre pen is probably a familiar tool. Solder and dirt can be quickly removed by rubbing over the surface of the metal with the bristles, and I find that the best way of working is with a tiny amount of fibre sticking out of the end of the ferrule. This also makes the refills last longer and cuts down the number of nasty little fragments that end up irritating your fingers. Two useful tips about the refills – buy them in boxes of 24 at drawing office and stationery shops or tool specialists like Eileen's Emporium, Squires or Shesto's, it's much cheaper than getting them singly at shows. Incidentally, when fibres do get stuck in your fingers, a good strong light and a fine pair of tweezers will usually get them out (when you can see the things, that is).

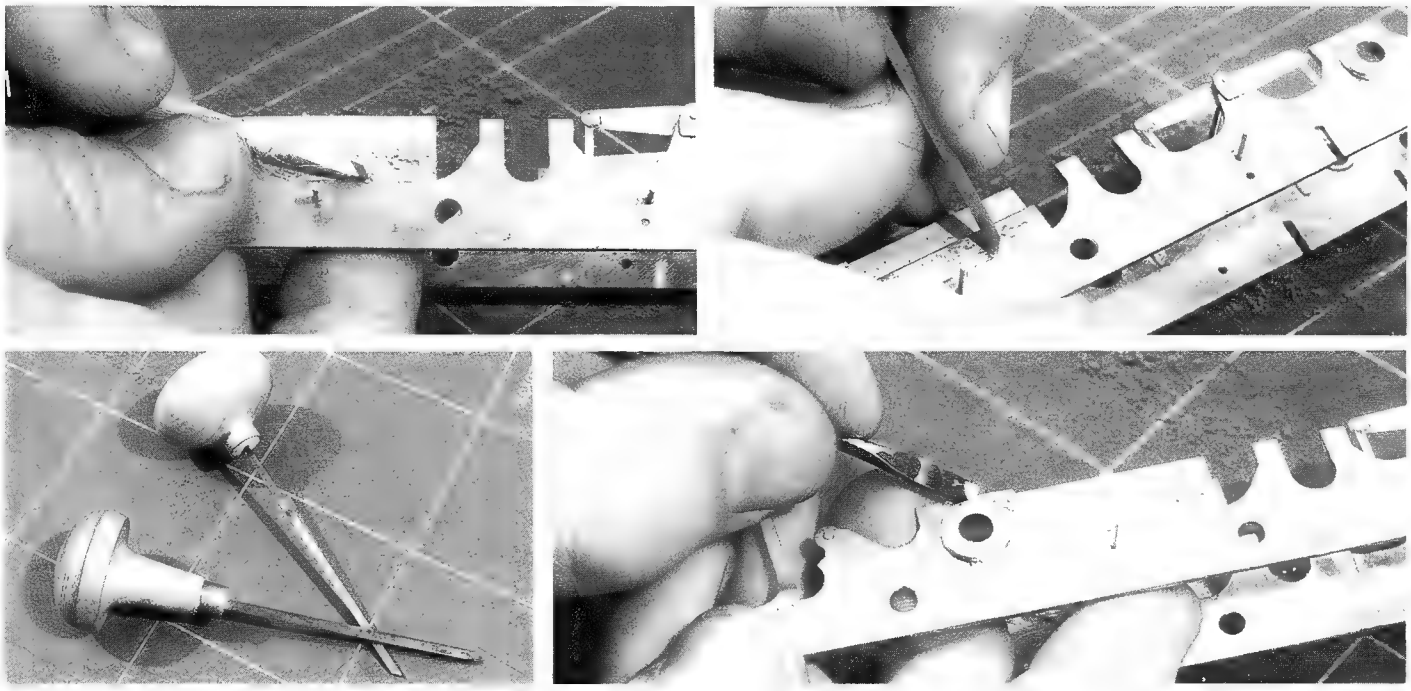
Garriflex abrasive blocks are made of an abrasive grit in a rubber compound. I find the coarse (blue) and medium (grey) grades the most useful. Like the glassfibre pen, they will quickly remove excess solder from the surface of your model and are very useful when solder has got in among rivet detail as they will not damage rivet heads as you rub away. For tight corners you can sometimes use a small piece of a block by cutting off a slice with a trimming knife. The rubber abrasive polishing wheels in the introductory photograph are made of the same material and, fitted in a mini-drill, will do the same job for small areas. Both these items come from tool suppliers, plus some model suppliers.







The triangular scraper is another way of removing solder and is especially useful for getting into corners where sharp definition between one surface and another is needed.



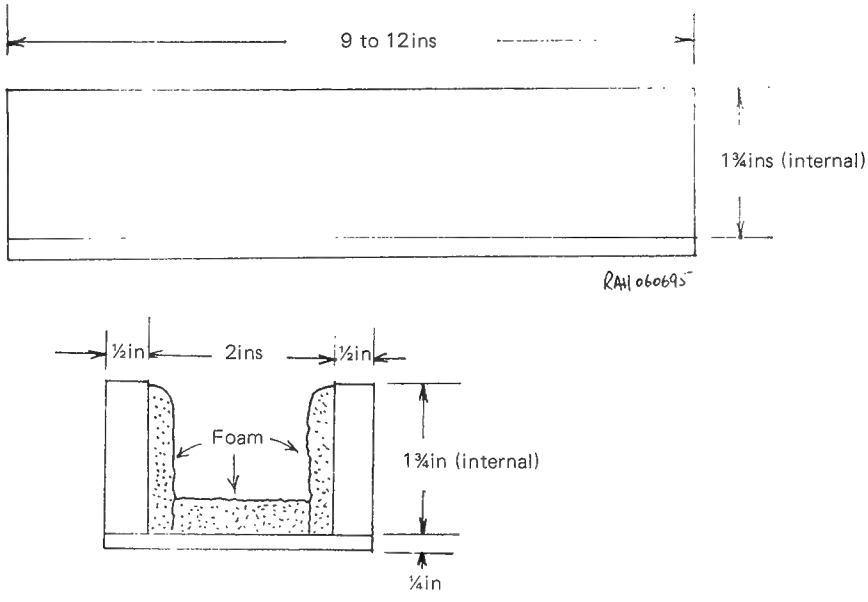
Engraving tools and home-made scrapers can be used in the same way. Hold the edge of the blade upright on the surface of the solder and scrape sideways in a paring action – you will very quickly remove large amounts of excess solder. Although the steel blade is much harder than either brass or nickel silver, you won't scratch the surface of your model unless you really press very hard. Keep the cutting edge sharp by honing it on an oilstone; a blunt scraper is more difficult to use and more likely to damage the model than a sharp one. When I am cleaning a completed model and getting it ready for painting, I will usually use most or all of these pieces of equipment. Once I feel I have removed as much as is possible, then the model will be rinsed again with kitchen cleaner and left to dry in a dust-free area overnight (under a plastic box, an old ice-cream tub, etc) before priming with paint.

Soft Working Cradle

BOB HASKINS makes a valuable workbench tool for next to nothing:

This is a quickie task which, once completed, provides a secure way of holding locomotives and rolling stock inverted whilst you work on the underframe details, clean wheels, adjust pick-ups, etc. More sophisticated versions are available from the trade but I would rather save my money for a kit by making this cradle from scrap.

All you need are some offcuts of timber and ply (oddments left over from the baseboards in my case) and some fairly dense foam rubber packing for use as a lining. External dimensions are not critical but, for 4mm, I would suggest that the cradle should not be less than 9in long – the fact that a 4mm coach extends beyond the end of mine has not caused any difficulties to date, but by all means make yours longer if you wish. The important dimensions are the internals: you need enough foam packing along the sides to keep things vertical, but not so much that it's a tight squeeze. Too tight and there's a risk of damage to grab handles, valve gear and so forth. Apart from two pieces of foam lining for the sides, a thicker piece is needed for the bottom of the cradle. This should be thick enough to prevent top detail such as whistles, domes, chimneys and the like penetrating the foam and making contact with the plywood base.



Assembly is straightforward. Either pin and glue the two side pieces to the base or, if you really want a belt-and-braces job, use screws. Line with foam – a dab of PVA keeps it in place – and that's it. One cradle ready for the workbench or behind the layout at exhibitions. I painted the outside surfaces of my cradle and stuck a piece of fabric underneath to avoid scratching the surface on which it's standing.

REAL ATMOSPHERE

This wartime scene shows three tired-looking opens apparently overloaded with stone, at Oxford in 1944. NATIONAL RAILWAY MUSEUM

A hoist, there

The evocative scene at New Barnet (Real Atmosphere MRJ No. 83) prompts me to point out that the 'portable weighing device' to the left of the coke wagon is in fact a sack lift truck, forerunner of the modern fork lift. The handle to the left wound a chain connected to the platform on which the sack stands, raising it to the height necessary for ease of transfer to a man's back. Originally designed to lift 2½ cwt (127 kilos!) of bagged grain, these trucks were a common feature at mills, farms and similar locations where movement of such cumbersome loads was necessary. Suitably scaled-down versions would, I suppose, enhance our models of similar scenes.

Alan Searle
Erdington
Birmingham

Your 'Real Atmosphere' picture was so typical of 1947, the wagons especially. The far one is an eight-planked example from the Fife-based Wemyss Coal Company and seems to be to the RCH 1923 specification. It obviously has an end door but there is no sign of a white diagonal stripe indicating its presence.

The nearer one, a seven-planker, also has an end door and here the stripe is clearly seen. It is owned by a firm in Lowestoft whose name I cannot make out. The four planks at the right-hand end have recently been renewed but are left unpainted as MOT regulations demanded. In consequence, owner's details (name, address, running number and tare weight but not capacity) have been reproduced at the bottom left-hand end of the body.

All these details are so typical of the wagon fleet of those years. Requisitioning of the privately-owned fleet meant they could be seen all over Britain in a vast assortment of liveries which (like the wagons themselves) got shabbier as the years rolled by. And just by looking at the photograph you can feel the cold.

Don Rowland
Dalkeith
Midlothian

Wavy laddering

Regarding Michael H. Walshaw's concluding article on GER signals in 4mm (MRJ No. 83), I certainly share his views on wavy laddering. Nothing destroys the atmosphere and reality of any layout more than signal supporting ladders which appear to have been hit by a Boeing 707 in full flight. I know from experience that etched laddering is flimsy but the answer is very simple: before painting and installation, lightly tin both sides of the ladder with ordinary electrician's or tinman's solder – the rigidity is improved by at least 100% and is totally invisible once painted.

Congratulations on the continuing quality of MRJ. To quote the catalogue supplement 'No gimmicks – just good articles'.

Oliver Hatton
Stockton-on-Tees
Cleveland

Filthy findings

Ian Hammond's letter (MRJ No. 83) about dirty wheels coincided with my own research. Several features play a part, which deserve considerations:

1. The draught of a train pulls dust underneath it, which has vibrated loose from the trackside (not to mention spectators!).
2. Particles become impacted onto the rail surface and are ground in by driving wheels.
3. Lubricating oil is flung into the draught by centrifugal force and helps dusty molecules to adhere to each other and the rails.
4. Bits of rail are ground off by flanges, especially on curves, so that the electricity powering our trains makes the final mixture slightly magnetic and therefore attractive to the wheels of passing rolling stock.
5. Even nylon wheels retain a degree of static charge from the friction of rolling, so that even if you have just cleaned wheels and railheads, there is no shortage of material on the trackbed just waiting to jump up as the next train rolls past.

Observe that when a heavy engine has passed over the frogs of turnouts for many fast circuits, there will be a deposit on the end of the check-rail closest to the V, which has been driven outwards by the grinding activity of the coupled motion and wheels.

At present, I am experimenting to see whether heavily-laden wagons succeed in displacing these 'tyres' of dirt, but cannot foresee any easy solution – only periodic cleaning.

G. W. Richards
Preston
Lancs

I was interested to read Ian Hammond's letter (MRJ No. 83) as I had a similar experience some years ago. It happened at an MRC Easter exhibition where my 3mm scale layout was in the New Horticultural Hall. Like Mr. Hammond's, my rolling stock wheels accumulated such a build-up of dirt that constant derailing resulted, and the encrustation was so hard that the wheels had to be scraped with a scalpel blade.

I do not use any form of track cleaner other than elbow grease and all the wheels were of the blackened steel type. Loco wheels and track always seemed clean but these were, naturally, cleaned at least once daily. Oddly, I do not remember loco bogie wheels, which are also blackened steel, being affected, but the mists of time may have altered my recollection of this.

This busy and prolonged exhibition was the only time I have suffered this problem. Is it possible that certain conditions cause a build-up of static which attracts dirt to the wheels? Another possibility is the presence of micro-

fine machining marks on the tyre into which dirt becomes impacted and subsequently accumulates. Giving the wheels a good polish before installation in the vehicle may be beneficial.

Tony Briddon
St. Albans
Herts

The sin of being thick . . .

The other week I acquired a reject carriage etch from one of our better-known producers. Its only sin – meriting consignment to the rejects box – was that it was etched in 20-thou rather than 12-thou brass. Some sin! Would that all 4mm carriages were done that way!

Etched carriage kits suffer from two main failings: they tend to be flimsy, especially around the window openings (how many have you seen with window pillars slightly distorted, usually as a result of difficulty bending top flanges?) and they are always too thin – with windows insufficiently recessed – to represent the wood-panelled prototypes for which they have otherwise been a Godsend. A 20-thou side is getting closer to giving scale window recesses, so if it really remains uneconomic to spend on thicker brass, why not introduce a second etch strip to go the full length behind window openings? Most kits now come with separate droplights, so the additional artwork and brass to provide 'inners' for all windows would be minimal. Meanwhile, I shall enjoy building my reject, even if it means being more punctilious with the bending bars. Any more of the same please route my way.

John S. Holden
Bradford-on-Avon
Wiltshire

The China syndrome

As an airline seat modeller as opposed to an armchair one, I do enjoy some of the niceties of MRJ. Your note in 'Misc', MRJ No. 82, about overseas modellers is a case in point. I tried bringing models with me on trips to do in hotel rooms, but it doesn't work for me – the first tool needed is always the one I forgot! Never mind, MRJ and other Wild Swan publications help to kill Sundays. I just hope I can live as long as Roye England, and achieve something of my modelling aims.

S. R. Shelton
Suzhou
People's Republic of China

NEW YEAR CROSSWORD

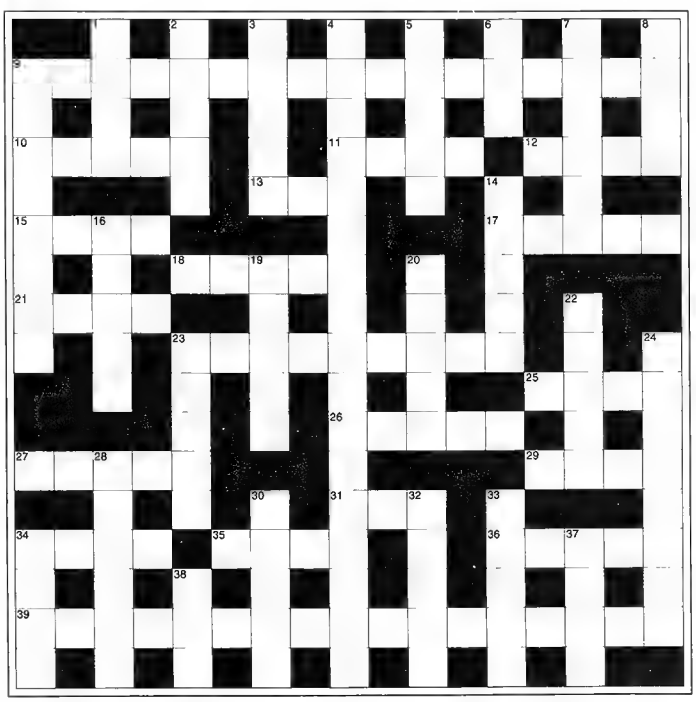
Compiled by Monty Wells

Once again, the MRJ Team has fought long and hard with the dictionary and come up with a prize crossword to challenge your sanity. Tough, taut and trying, but always we hope it gives you a lot of fun. Closing date is the release of the next issue (see Contents page).

Completed entries (photocopies acceptable) with your name and address on the back to Model Railway Journal, PO Box 800, West Wratting, Cambridge, CB1 5NB. The first three correct entries drawn out of the bag will win the choice of a year's subscription to MRJ or its equivalent value in Wild Swan books. Good luck!

ACROSS

9 Fast-looking locomotive finish polished by the lightest touch (3-8, 6)
10 Where some drivers were, OK (5)
11 Pitched in to make good use of a redundant coach (4)
12 Contact Marklin at a dating agency for *18 across*? (4)
13 Doctor, I hear this is the *Model Railway Club's* little Luton layout (3)
15 Shock treatment using oil and air (4)
17 Modern freight train with luxurious, ocean-going accommodation (5)
18 An East Coast racehorse having the style of James Bond (5)
21 Done differently when we talk about a marshalling yard in the freight network (4)
23 Chain comprising one more than a couple (5-4)



25 A short line is an incentive (4)
26 Slip the controller one of these to increase your power (5)
27 Fred, commonly of Highland Rivers (5)
29 Jim, commonly of Hastings (4)
31 Otherwise a corridor on the SR, six of which were Nelson's (3)
34 A mediaevel torture machine commanded by *26 across* to control the diesel's power (4)
35 An excursion, presumably, having a mixed route but not east (4)
36 Gloat over Spanish articulation (5)
39 Mobile telephone line for 999 calls (13, 4)

DOWN

1 Transvestite stops you in your tracks (4)
2 Disgusting things from a chimney, in the eye of the beholder (5)
3 Cricketer known for his GWR engines (5)
4 Sweet pleasure for any GWR fan (9, 3, 5)
5 The first man's radical engine for the L&SWR (5)
6 What Fred colloquially gave the wheels at Crewe (3)
7 A '47 has 24, a '24 has six, an A3 has three, but an '87 has none. What is it? (6)
8 Timely cause for the Circle X brand (4)
9 Gaseous antlers give warning (3, 5)
14 A hundred short relieved the smokebox pressure (5)
16 Quite upset at tee-total tippler (5)
19 (*see 34 down*)
20 A particularly sharp junction (5)
22 Soft load constructed from Airfix kits (5)
23 (*see 34 down*)
24 Dugald and Peter designed locomotives separately (8)
28 From where BR is expected to obtain investment (6)
30 Truck belonging to a frightening creature of the night (5)
32 Method of passing a signal where no signal is present (5)
33 The stopped train is at one (5)
34 (and *23 Down* then *19 Down*) Ready? Steady? Getting to Scotland was competitive stuff (4, 2, 3, 5)
37 Gives you the run-around (4)
38 Seriously, what modelling should be (3)

DIARY

FEBRUARY

3/4 **The Newtonian Railway Modelling Group** exhibition at The Leisure Centre, Spennymoor, Co. Durham. 10.00 – 5.00. £1.75/75p.

3/4 **Rochdale Model Railway Group** exhibition at the Town Hall, Rochdale, Lancs. 10.00 – 6.00 (5.00 Sun). £2.00/£1.00/£5.00.

4 **Bristol 'O' Gauge Group** exhibition at Brunel Old Station, Bristol Temple Meads. 10.30 – 5.00. £3.00/£2.50/50p.

10/11 **Normanton & Pontefract Railway Modellers Society** 27th exhibition at Normanton Community Centre, Market Street, Normanton (Junction 31, M62), West Yorkshire. 10.00 – 7.00 (6.00 Sun). £1.90/90p/£4.70.

10/11 **Railway Enthusiasts' Club**/Calthorpe Park School Association exhibition at Calthorpe Park School, Hitches Lane, Fleet, Hampshire. 10.00 – 5.00. £2.50/£1.50/£6.00.

16-18 **Sussex Association of Model Railway Clubs** Brighton International Modelworld Exhibition at The Brighton Centre, King's Road (on the seafront). 12.00 – 7.00 (Fri), 10.00 – 7.00 (Sat), 10.00 – 6.00 (Sun). £3.50/£1.60/£8.00.

17 **East Bedfordshire Model Railway Society** exhibition at Stratton School, Eagle Farm Road, Biggleswade, Beds. 10.30 – 5.30. £1.60/80p/£4.00.

17 **Small & Delightful Railway Group's** Narrow Gauge South West 1996 at Whitstone School, Shepton Mallet, Somerset. £2.50/50p/£5.50.

24 **Warminster & District Model Railway Group** exhibition at Assembly Hall, Western Car Park, Warminster, Wiltshire. 10.00 – 5.00. £1.80/90p/£4.00.

24/25 **Solent Model Railway Group** exhibition at Guildhall & Solent Suite, Civic Centre, Southampton. 10.30 – 6.00 (5.00 Sun). £2.90/£1.50/£7.50.

24/25 **Whitchurch & District Model Engineers** (with Cardiff 4mm Group, BBC MRC, Bridgend MRC, Bay MRC, North Gwent MRC) 12th Cardiff exhibition at Star Leisure Centre, Splott Road, Cardiff. 10.00 – 5.00. £1.90/80p.

HISTORICAL MODEL RAILWAY SOCIETY
Meetings for February 1996

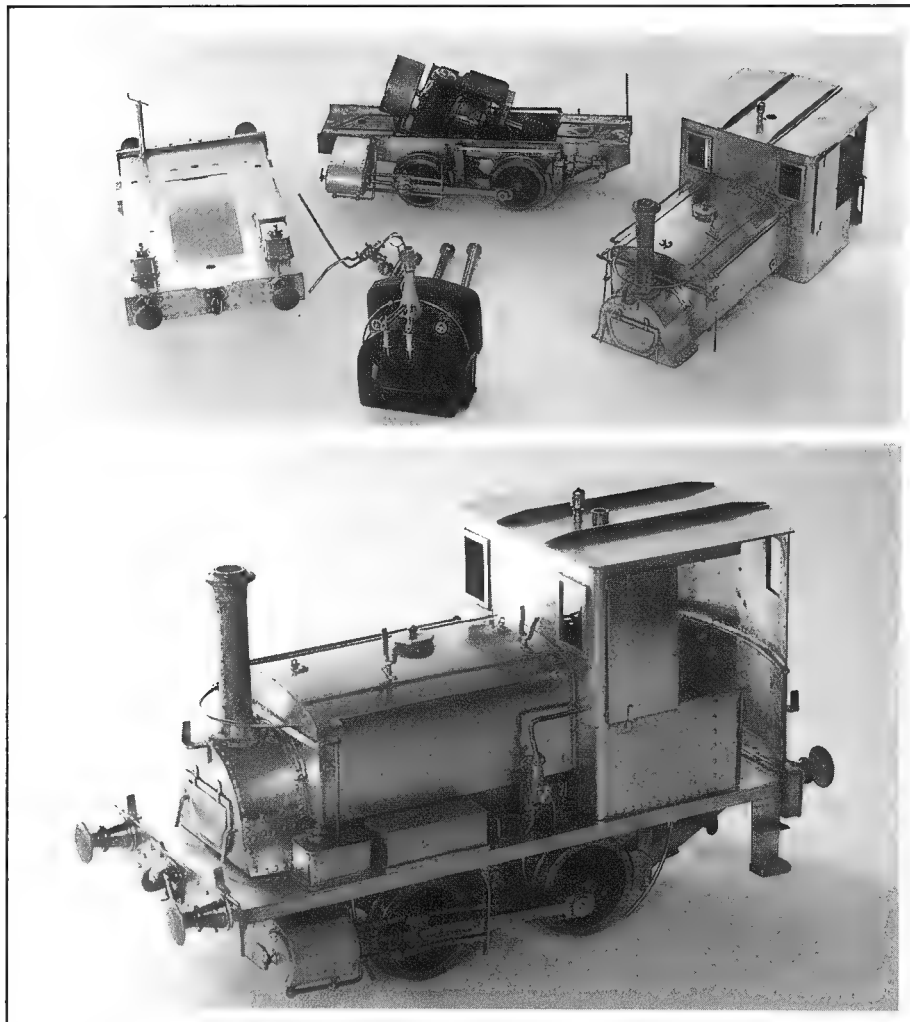
Bletchley Area: 28th February. 7.30 p.m. at the Milton Keynes Model Railway Society clubrooms, Bletchley. 'Lining Rolling Stock': R. L. Moore.

Bristol Area: 17th February, 2.30 p.m. at the Somerset Room, Saltford Hall, Saltford, near Bristol. 'Research for Railway Modelling': Peter Hall.

East Midlands Area: 8th February, 7.30 p.m. at the Ashfield Hotel, near Mansfield. 'Painting and Lining': Steve Barnfield.

London Area: 12th February, 7.00 p.m. at the Prince Regent, Marylebone High Street, London. 'Rail Tank Cars': Peter Fidczuk.

Worcester Area: 14th February, 7.30 p.m. at the Cherry Orchard Centre, Orchard Street, Worcester. Members' slides evening and other projects and contributions.



LAST CALL FOR MRJ MANNING WARDLES!

As we gear up for our next project, finished examples of 4mm MRJ Manning Wardles – built following Paul Berntsen's series last year – continue to roll steadily in. Readers who wish to be in with a chance for our £100 prize need to get their snapshots in as soon as possible, as we will definitely be judging in February.

One of the latest entries to arrive is the model shown here, built by Patrick Smith of High Wycombe, Buckinghamshire. This, believe it or not, is a first scratchbuild. Patrick started out with simple plastic kits, had a brief and nightmarish time with badly-manufactured etched kits whose instructions left almost everything to be desired, and finally had success with a Finney kit of a GWR Pannier – "which proved that well-designed 'complex' kits are much easier to complete than poorly-designed 'simple' kits", he says.

At this point, Patrick laid long-term plans to build models of locos and stock of particular personal interest – early Malaysian prototypes – and wondered how to go about acquiring the necessary scratchbuilding skills. "Then along came the MRJ project, and that was the end of any excuses about not working sheet metal from scratch."

This Manning Wardle took him about four months to build. He says he had no problems at all with the basic techniques, although he did have to correct a couple of mistakes and made a number of the smaller components three or four times before he was happy with them. By sheer good luck, the pictures of Andrew Field's outstanding entry appeared in MRJ No. 79 just as he was adding his own final detailing, which proved useful.

Patrick concludes: "I have certainly learnt a great deal from the project and have to agree with other readers who described the whole project as inspired. I very much doubt that I would have built up my own confidence as quickly if I hadn't completed my own model. Perhaps – and most importantly – I thoroughly enjoyed building it."

This, then, is the last call for entries to our competition. Send at least two but no more than three photos, one showing the body removed – ordinary snapshots will do – and a brief description to the editorial address. Remember, we're not looking solely for antiseptic masterpieces – character, style and effort will all be taken into account, so everyone is in with a chance.

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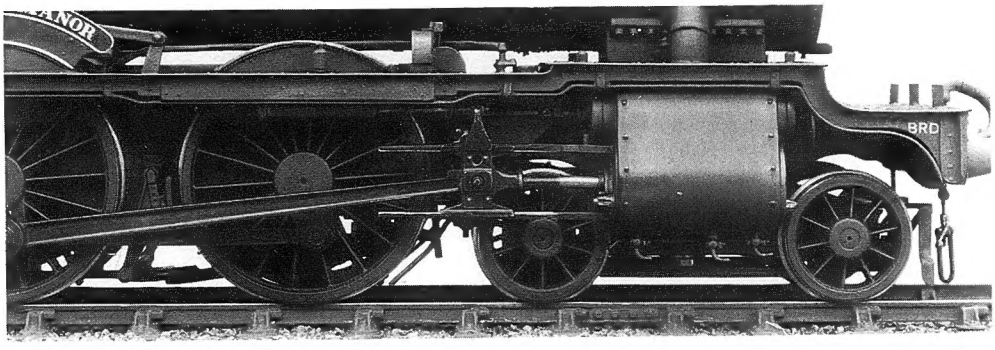

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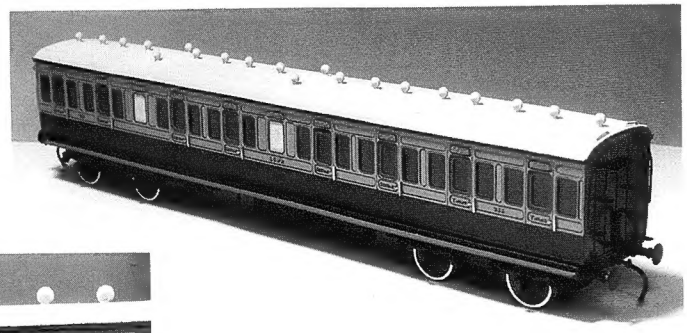

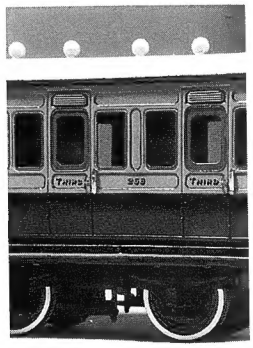

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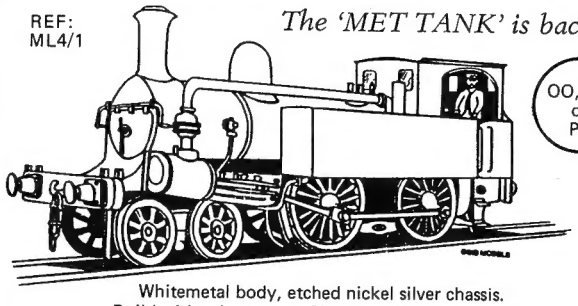
IKB MODELS

REF: ML4/1

The 'MET TANK' is back!



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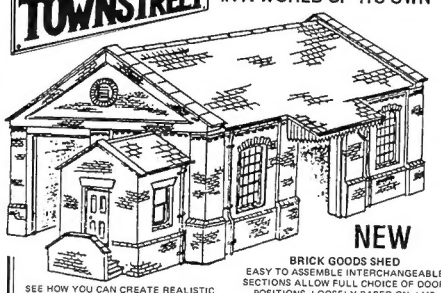

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'OO' PLATFORM SETS brick/stone
6 piece over 4ft inc. ramps £16.95
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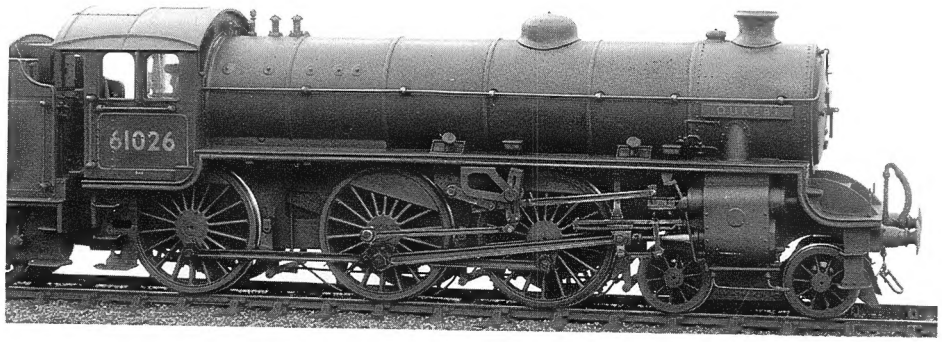
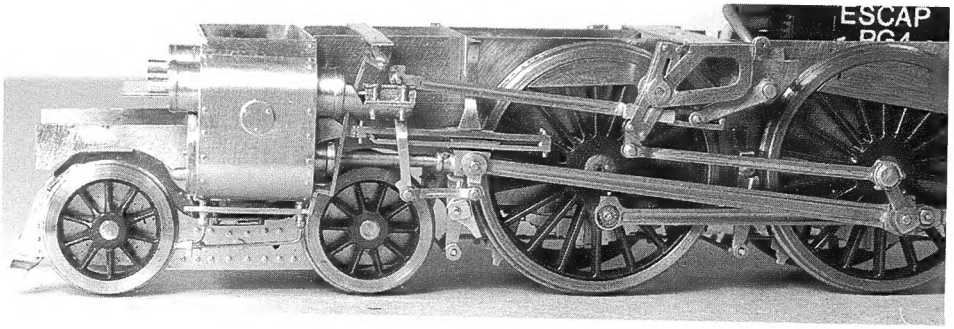
Chassis kit for LNER B1



This kit was designed to produce an accurate and realistic 4mm scale LNER B1 model using the excellent Replica body as a basis, although any scale body could be used.

The particularly fine valve gear is a correct representation of the original with forked joints and full 'box' expansion links. As with all my kits, full springing is provided, although the model may be built rigid or compensated if preferred.

The chassis is etched in nickel silver and castings are exclusively brass. Included are a tender chassis, chimney, dome, alternative smokebox doors plus full instructions, but not wheels, gears or motor.



Price £48.00
plus £1.50 P & P.

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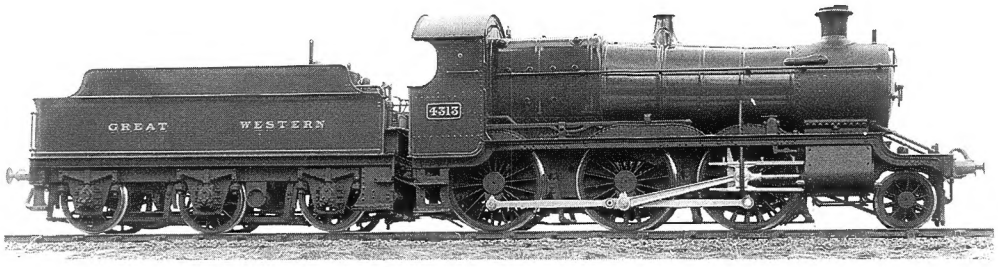
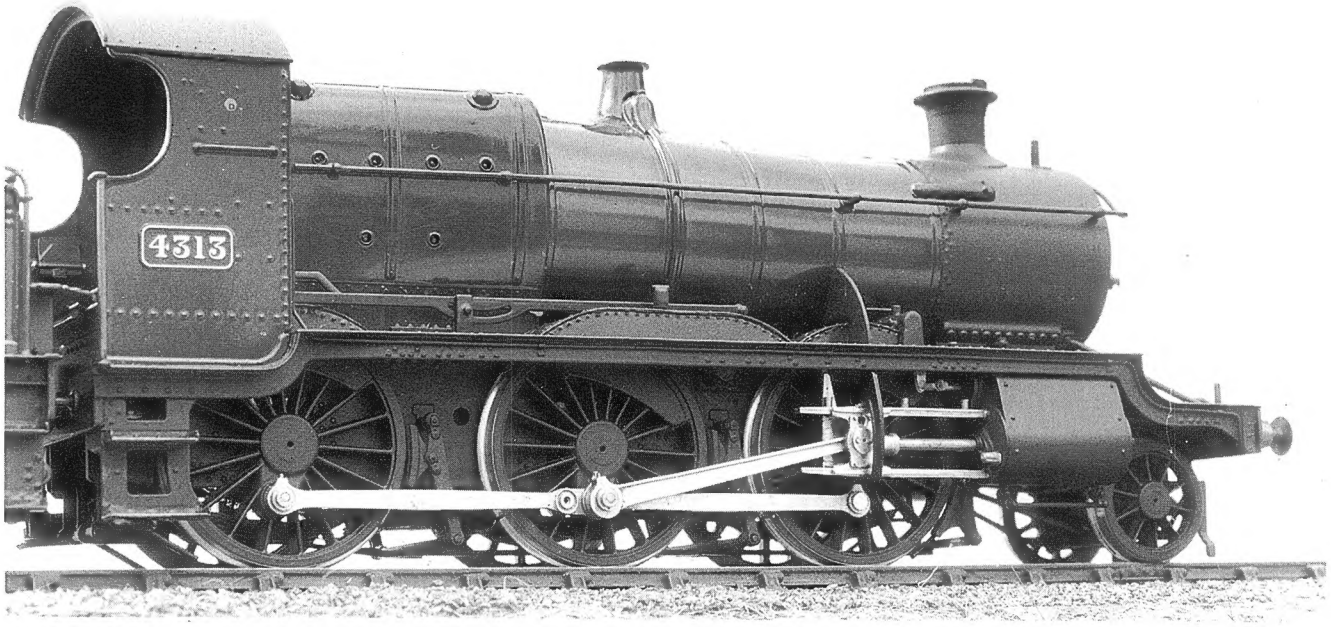


GWR MOGUL *4MM SCALE VERSION ILLUSTRATED*



Pictured here is a completed model of the ubiquitous GWR Mogul mixed traffic locomotive built from one of the finescale etched kits available in my current range.

These engines could be found all over the GW system from 1911 right up to the end of steam, and no fewer than 342 were built. The kit can be built to represent the 43/53/63/73 and 83 classes (the 93XX with side window cab will be the subject of a future product). The model consists of finely detailed etched brass and nickel parts complete with lost wax and whitemetal castings. All you need are wheels and motor to complete.

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